ADDITIONAL NOTES ON THE ERIOCAULACEAE. LXXXVI

Harold N. Moldenke

ERIOCAULON GILUWENSE Van Royen
Additional bibliography: Mold., Phytologia 53: 295. 1983.
Croft and his associates describe the leaves of this plant as "semi-glossy mid-green" and the "flowers" white.
Citations: NEW GUINEA: Papua: Croft & al. LAE.60807 (E--2426775). MOUNTED ILLUSTRATIONS: Van Royen, Alpine Fl. N. Guin. 2: 837, fig. 284 A--G. 1979 (Ld).

ERIOCAULON GLABERRIMUM Miyabe & Satake
Additional bibliography: Mold., Phytologia 24: 461. 1972; Mold., Phytol. Mem. 2: 300 & 599. 1980.

ERIOCAULON GLAUCESCENS W. Griff.
Additional bibliography: Mold., Phytologia 24: 461. 1972; Mold., Phytol. Mem. 2: 368 & 599. 1980.

ERIOCAULON GLAUCUM W. Griff.
Additional bibliography: Mold., Phytologia 32: 493. 1976; Mold., Phytol. Mem. 2: 272 & 599. 1980.

ERIOCAULON GLAZIOVII Ruhl.
Additional bibliography: Mold., Phytologia 32: 493. 1976; Mold., Phytol. Mem. 2: 141 & 599. 1980.
Additional citations: BRAZIL: Minas Gerais: Glaziou s.n. [Macbride photos 10558] (W--photo of type).

ERIOCAULON GOMPHRENOIDES Kunth
Additional bibliography: Ruhl. in Wettstein, Denkschr. K. Akad. Wiss. Wien Math.-nat. 79: 87. 1908; Mold., Phytologia 36: 478--479 & 482. 1977; Mold., Phytol. Mem. 2: 141 & 599. 1980.
Recent collectors have encountered this plant among Sphagnum in marshes, flowering and fruiting in September.
Additional citations: BRAZIL: Paraná: Lindeman & Irgang ICN. 8116 (Ld).

ERIOCAULON GRAPHITINUM F. Muell. & Tate
Additional bibliography: Mold., Phytologia 36: 479. 1977; Mold., Phytol. Mem. 2: 336 & 599. 1980.

ERIOCAULON GREGATUM Körn.
Additional bibliography: Fyson, Indian Sp. Erioc. pl. 5. 1923; Worsdell, Ind. Lond. Suppl. 1: 375. 1941; Mold., Phytologia 36: 479. 1977; Mold., Phytol. Mem. 2: 261, 278, & 599. 1980.
Additional illustrations: Fyson, Indian Sp. Erioc. pl. 5. 1923.

ERIOCAULON GRISEUM Körn.

Additional bibliography: Lotsy, Vortr. Bot. Stammesges. 3 (1): 706 & 964, fig. 480 (9) & (10). 1911; Mold., Phytologia 41: 421. 1979; Mold., Phytol. Mem. 2: 141 & 599. 1980.

Additional illustrations: Lotsy, Vortr. Bot. Stammesges. 3 (1): 706, fig. 480 (9) & (10). 1911.

ERIOCAULON GUADALAJARENSE Ruhl.

Additional bibliography: Mold., Phytologia 32: 493. 1976; Mold., Phytol. Mem. 2: 62 & 599. 1980.

McVaugh describes this plant as having very soft herbage and found it growing along rivulets in pine forests in an area of pine-oak forest on decomposed granitic soils on steep mountainsides associated with Podocarpus, Quercus, and other deciduous trees in the rocky stream valleys, at 850--1160 m. altitude, in flower in February.

Additional citations: MEXICO: Jalisco: McVaugh 26364 (Mi); Pringle 1734 (Mi--isotype).

ERIOCAULON GUYANENSE Körn.

Additional bibliography: Mold., Phytologia 32: 493--494 (1976), 35: 341 (1977), and 37: 87 & 257. 1977; Mold., Phytol. Mem. 2: 115, 121, 126, 141, & 599. 1980.

ERIOCAULON HAMILTONIANUM Mart.

Additional bibliography: Fyson, Indian Sp. Erioc. pl. 33. 1923; Worsdell, Ind. Lond. Suppl. 1: 375. 1941; Mold., Phytologia 32: 494 & 495. 1976; Babu, Herb. Fl. Dehra Dun 547--548. 1977; Mold., Phytol. Mem. 2: 261, 285, 401, & 599. 1980; Mold., Phytologia 50: 251 (1982) and 53: 295. 1983.

Additional illustrations: Fyson, Indian Sp. Erioc. pl. 33. 1923.

Saldanha refers to this plant as a common herb with white heads in Mysore and found it there in moist shaded areas by streams, in flower in October.

Material of this species has been misidentified and distributed in some herbaria as E. elenorae Fyson.

Additional citations: INDIA: Karnataka: Saldanha 15416 (Ld, W--2616731).

ERIOCAULON HAMILTONIANUM var. MINIMUM Fyson

Additional bibliography: Mold., Phytologia 29: 199. 1974; Mold., Phytol. Mem. 2: 261 & 599. 1980.

ERIOCAULON HAMILTONIANUM var. MINOR Fyson

Additional bibliography: Mold., Phytologia 29: 199. 1974; Mold., Phytol. Mem. 2: 261 & 599. 1980.

ERIOCAULON HANANOEGOENSE Masamune

Additional bibliography: Mold., Phytologia 32: 494. 1976; Mold., Phytol. Mem. 2: 303 & 599. 1980.

ERIOCAULON HAYATANUM T. Koyama
Additional bibliography: Mold., Phytologia 24: 462. 1972; Mold., Phytol. Mem. 2: 292 & 599. 1980.

ERIOCAULON HELEOCHARIOIDES Satake
Additional bibliography: Mold., Phytologia 32: 494. 1976; Mold., Phytol. Mem. 2: 300 & 599. 1980.

ERIOCAULON HENRYANUM Ruhl.
Additional bibliography: Mold., Phytologia 34: 264 & 400. 1976; Mold., Phytol. Mem. 2: 261, 278, 285, 292, & 600. 1980.
Lecomte (1912) cites for this species only an unnumbered André collection from Annam, Vietnam.
Recent collectors have encountered this plant on mountaintops, in light, wet, sandy dipterocarp forests, in wet places on moist savannas over sandstone, in bogs and open marshy meadows, in swampy ground, and in boggy areas along streams, at 210--3000 m. altitude, in flower in June, July, and October to December, in fruit in July and November. They describe the plant as 3--12 inches tall, the "flowers" white, gray, grayish-white, or greenish-white. Rock even found it growing at 12,000 feet altitude.
Additional citations: CHINA: Yünnan: Forrest 4897 (Ba), 6182 (Ba), 8450 (Ba), 27861 (Ba); McLaren's Collectors V.34a (Mi, Mi); Rock 24927 (It). THAILAND: Beusekom, Geesink, & Wongwan 4589 (E--2359052); Beusekom & Smitinand 2141 (Ac); Phengklai, Tamura, Niyomdham, & Sangkachand 4163 (N); Shimizu, Toyokuni, Koyama, Yahara, & Niyomdham T.21888 (Ac).

ERIOCAULON HENRYANUM f. VIVIPARUM Mold.
Additional bibliography: Mold., Phytologia 34: 264 & 400. 1976; Mold., Phytol. Mem. 2: 278 & 600. 1980.

ERIOCAULON HERZOGII Mold.
Additional bibliography: Mold., Phytologia 32: 494. 1976; Mold., Phytol. Mem. 2: 141 & 600. 1980.

ERIOCAULON xHESSII Mold.
Additional bibliography: Mold., Phytologia 24: 463. 1972; Mold., Phytol. Mem. 2: 233, 400, & 600. 1980.

ERIOCAULON HETEROCHITON Körn.
Additional bibliography: Mold., Phytologia 34: 400 (1976) and 41: 423, 452, & 453. 1979; Mold., Phytol. Mem. 2: 250 & 600. 1980.

ERIOCAULON HETEROCHITON var. ACUMINATUM Mold.
Additional bibliography: Mold., Phytologia 24: 463. 1972; Mold., Phytol. Mem. 2: 250 & 600. 1980.

ERIOCAULON HETERODOXUM Mold.
Additional bibliography: Mold., Phytologia 32: 494. 1976; Mold., Phytol. Mem. 2: 121 & 600. 1980.
Additional citations: GUYANA: Sandwith 1603 (W--1931205).

ERIOCAULON HETEROGYNUM F. Muell.
Additional bibliography: T. B. Muir, Muelleria 2: 140. 1972; Mold., Phytologia 34: 400. 1976; Mold., Phytol. Mem. 2: 326, 336, & 600. 1980.

ERIOCAULON HETEROLEPIS Steud.
Additional bibliography: Mold., Phytologia 32: 494--495 (1976), 33: 11 (1976), and 36: 38. 1977; Mold., Phytol. Mem. 2: 261, 314, & 600. 1980.
Ramamoorthy describes this plant as a fairly common herb in Mysore, growing in the open near streams in the wet deciduous zone, commenting that the involucral bracts are lanceolate and longer than the floral bracts. He found the plant in flower and fruit in October.
The Ramamoorthy HFP.1368, distributed as E. heterolepis, seems actually to be E. sollyanum Royle.
Additional citations: INDIA: Karnataka: Jarrett, Saldanha, & Ramamoorthy HFP.1108 (W--2797016).

ERIOCAULON HETEROLEPIS var. NIGRICANS Körn.
Additional bibliography: Mold., Phytologia 36: 479. 1977; Mold., Phytol. Mem. 2: 314 & 600. 1980.

ERIOCAULON HETEROMALLUM Bong.
Additional bibliography: Mold., Phytologia 24: 463. 1972; Mold., Phytol. Mem. 2: 141 & 600. 1980.

ERIOCAULON HETEROPEPLON Alv. Silv.
Additional bibliography: Worsdell, Ind. Lond. Suppl. 1: 375. 1941; Mold., Phytologia 32: 495. 1976; Giulietti, Bol. Bot. Univ. S. Paulo 6: 39--47. 1978; Mold., Phytol. Mem. 2: 141 & 600. 1980; Mold., Phytologia 53: 265. 1983.
Giulietti (1978) has reduced this taxon to synonymy under E. melanocephalum Kunth.

ERIOCAULON HETEROPETALUM Ruhl.
Additional bibliography: Mold., Phytologia 36: 479. 1977; Mold., Phytol. Mem. 2: 89 & 600. 1980.

ERIOCAULON HEUDELOTII N. E. Br.
Additional bibliography: Mold., Phytologia 41: 416 & 421. 1979; Mold., Phytol. Mem. 2: 200, 205, 233, 235, 242, 401, & 600. 1980; Mold., Phytologia 53: 265 & 267. 1983.
Recent collectors describe this plant as to 12 cm. tall, with black anthers, and have found it growing in wet moss by small rivulets, in both flower and fruit in March and April.
Material has been misidentified and distributed in some herbaria as E. abyssinicum Hochst., E. "amboense Schinz", and E. "amboensis Schinz".
Additional citations: NAMIBIA: Giess 10245 (Mu), 15280 (Mu); Wanntorp & Wanntorp 949 (Mu).

ERIOCAULON HILDEBRANDTII Körn.
Additional bibliography: Mold., Phytologia 29: 199. 1974; Mold., Phytol. Mem. 2: 250 & 600. 1980.

ERIOCAULON HOMETEPALUM T. Koyama
Additional bibliography: Mold., Phytologia 24: 464. 1972; Mold., Phytol. Mem. 2: 292 & 600. 1980.

ERIOCAULON HONDOENSE Satake
Additional bibliography: Mold., Phytologia 36: 479. 1977; Holm, Pancho, Herberger, & Plucknett, Geogr. Atlas World Weeds 148. 1979; Mold., Phytol. Mem. 2: 299--301, 303, & 600. 1980.
Additional citations: JAPAN: Honshu: Ohwi & Koyama 1124 (Mi); Togasi 914 (Mi), 1101 (Mi).

ERIOCAULON HONDOENSE var. GRACILE Satake
Additional bibliography: Mold., Phytologia 24: 464. 1972; Mold., Phytol. Mem. 2: 300 & 600. 1980.

ERIOCAULON HONDOENSE var. PILOSUM Satake
Additional bibliography: Mold., Phytologia 24: 464. 1972; Mold., Phytol. Mem. 2: 300 & 600. 1980.

ERIOCAULON HONDOENSE var. STELLATUM Satake
Additional bibliography: Mold., Phytologia 24: 464--465. 1972; Mold., Phytol. Mem. 2: 301 & 600. 1980.

ERIOCAULON HONDOENSE var. STENOPETALON T. Koyama
Additional bibliography: Mold., Phytologia 24: 465. 1972; Mold., Phytol. Mem. 2: 301 & 600. 1980.

ERIOCAULON HOOKERIANUM Stapf
Additional bibliography: Worsdell, Ind. Lond. Suppl. 1: 375. 1941; Mold., Phytologia 34: 401 & 402 (1976), 36: 479 (1977), and 41: 457. 1979; Mold., Phytol. Mem. 2: 261, 285, 292, 296, 314, 326, & 600. 1980.
Recent collectors describe this plant as a rosette herb, often growing in small dense cushions, the leaves yellowish-green or semi-glossy mid-green, the involucre "gray-blackish", and the inflorescence white or "gray-white". They report it common in wet blang, in dense or loose tussocks, and in swamps among evenly mixed sward of Cyperus, Eleocharis, and Xyris in 25 cm. of water, at 2000--3420 m. altitude, in flower in July and both in flower and fruit in March, April, and August.
Lecomte (1912) cites for this species only an unnumbered Balansa collection from Tonkin, Vietnam, but records it also from Borneo.
Additional citations: GREATER SUNDA ISLANDS: Sumatra: Wilde & Wilde-Duyfjes 15368 (W--2887972), 16273 (W--2888026). NEW GUINEA: Papua: Croft & al. LAE.61929 (E--2473571); Walker ANU.517 (W--2956515).

ERIOCAULON HOOKERIANUM var. MICROPHYLLUM Van Royen
Additional bibliography: Mold., Phytologia 24: 465. 1972; Mold., Phytol. Mem. 2: 326 & 600. 1980.

ERIOCAULON HOOPERAE Mold., sp. nov.
Herba parva foliis tenuissimis rigidulis adscendentibus 3--5 cm. longis usque ad 1 mm. latis pallide rubellis apicaliter longissime attenuatis basaliter distincte fenestratis utrinque glabris, pedunculis gracillimis in statu juvenile 1.5--3.5 cm. longis glabris, capitulis parvissimis, bracteis involucrantibus paucis pallide stramineis oblongis ca. 2 mm. longis 1 mm. latis externe glabris.

A small rosette herb, the numerous basal leaves very slender, pinkish, thin-textured and decidedly fenestrate (in the broader portions), 3--5 cm. long, to 1 mm. wide, apically very long-attenuate, glabrous on both surfaces, mostly erect or ascending, the inflorescences apparently quite immature, the peduncles filiform, glabrous, 1.5--3.5 cm. long, the heads apparently very few-flowered and small, involucral bracts few, closely appressed, oblong, about 2 mm. long and 1 mm. wide, externally glabrous, the flowers too immature for accurate dissection or description.

The species is based on G. C. Taylor 92 growing in sand beside a waterhole 1.5 km. north of Kalumburu Mission in Western Australia, collected on May 30, 1971, and deposited in the Lundell Herbarium at the University of Texas. Miss Sheila S. Hooper, at Kew, kindly examined the type specimen and reported to me on June 11, 1977: "very young and I cannot make out the floral structure", noting that "The stiff pink-tinged leaves look distinctive but I cannot match it except in E. spectabile which appear [to be] a much larger plant. E. nanum has similar small heads with gray floral bracts." The species is dedicated to her. Based on material available to be, its visible characters are very dissimilar to those of both E. nanum R. Br. and E. spectabile F. Muell.

Citations: AUSTRALIA: Western Australia: G. C. Taylor 92 (Ld--type).

ERIOCAULON HUIANUM Ruhl.
Additional bibliography: Mold., Phytologia 34: 401. 1976; Mold., Phytol. Mem. 2: 278 & 600. 1980.

ERIOCAULON HUMBOLDTII Kunth
Additional synonymy: Eriocaulon humboldtii Kuhl ex Mold., Phytologia 50: 260, in syn. 1982.

Additional bibliography: Bong., Mem. Acad. Imp. Sci. St.-Pétersb., ser. 6, 1: 630. 1831; Knuth, Feddes Repert. Spec. Nov. 43: [Init. Fl. Venez.] 179. 1927; Mold., Phytologia 41: 422. 1979; Mold., Phytol. Mem. 2: 108, 115, 121, 141, & 600. 1980; Mold., Phytologia 50: 260. 1982.

Recent collectors refer to the flowering inflorescences of this plant as "white" or "whitish". They have encountered the plant in brejo, on "treeless wet savannas leading to morichal",

"frequent in black sandy soil of high wet savannas", "in ponds in morichal", "in agapó de solo arenoso", in marshy grasslands, in marshy savannas leading to gallery forests, in cerrado, in acid bogs with Sphagnum, in artificially formed ponds, in wet depressions in savannas with many other eriocauls and xyrids, and "in wet areas on savannas leading to cano", at 60--720 m. altitude, in flower from February to April and in August and November, in fruit in April and November. Murça Pires & Furtado aver that the flower stalks may attain a height of 1--1.5 meters, but I have never seen any remotely approaching such a length.

Material of E. humboldtii has been misidentified and distributed in some herbaria as Syngonanthus xeranthemoides (Bong.) Ruhl.

Additional citations: COLOMBIA: Vaupés: Schultes & Cabrera 20016 (W--2198934). VENEZUELA: Amazonas: Davidse & Huber 14997 (E--2719335, Ld); O. Huber 652 (Ve), 3477 (Lc), 3622 (Lc), 4715 (Ld); Huber & Tillett 2863 (Ld); Maguire, Cowan, & Wurdack 30464 (W--2046496); Maguire & Maguire 35473 (W--2168953); Maguire, Phelps, Hitchcock, & Budowski 31784 (W--2046548). Apure: Davidse & González 13909 (Ld), 14685 (Ld), 15868 (Ld), 15938 (Ld). Bolívar: Koyama & Agostini 7230 (W--2575509A); Liesner & González 11305 (Ld), 11422 (Ld); O. Maguire 33232 (W--2168903); Maguire & Wurdack 33997 (W--2168919), 35754 (W--2168959); Steyermark 75243 (W--2407748), 75272 (W--2407750), 88796 (W--2435331), 121085 (Ld); Steyermark & Wurdack 24 (W--2168499, W--2407787); Wurdack & Monachino 41173 (W--2223465). BRAZIL: Amapá: Austin, Nauman, Secco, Rosário, & Santos 7277 (Ld, N, W--2932766). Amazônas: Calderón, Monteiro, & Guedes 2742a (W--2951515); Murça Pires & Santos 16612 (N). Bahia: Hatschbach 42132 (Ld); Irwin, Grear, Souza & Santos 14742 (W--2801663), 44107 (Ld). Goiás: Irwin, Maxwell, & Wasshausen 21355 (W--2598444). Mato Grosso: Maguire, Murça Pires, Maguire, & Silva 56270 (W--2514894); Murça Pires & Furtado 17137 (Ld); Prance, Lleras, & Coêlho 18839a (Ld, N); Silva & Pinheiro 4523 (N).

ERIOCAULON HUMILE Mold.

Additional bibliography: Mold., Phytologia 32: 494, 495, 501, & 506. 1976; Bole & Almeida, Journ. Bomb. Nat. Hist. Soc. 74: 226, 1977; Mold., Phytol. Mem. 2: 261 & 600. 1980.

Recent collectors refer to this plant as a fairly common herb in Mysore, with white flowering heads, and have found it growing in the open near streams in the wet deciduous zone, in both flower and fruit in October.

Material of this species has been identified and distributed in some herbaria as E. cinereum R. Br. and E. trilobum Hamilt.

Additional citations: INDIA: Karnataka: Jarrett & Ramamoorthy HFP.1107 (W--2797012). Maharashtra: Padhye 4 (Ld), 8 (Ld).

ERIOCAULON HYDROPHILUM Markötter

Additional bibliography: Mold., Phytologia 24: 466. 1972; Mold.,

Phytol. Mem. 2: 245 & 600. 1980.

ERIOCAULON INFAUSTUM N. E. Br.
Additional bibliography: Mold., Phytologia 29: 200 (1974) and 33: 15. 1976; Mold., Phytol. Mem. 2: 240 & 600. 1980.

ERIOCAULON INFIRMUM Steud.
Additional & emended bibliography: Walp., Ann. Bot. Syst. 5: 926 & 941--942. 1860; Fyson, Indian Sp. Erioc. pl. 19. 1923; Worsdell, Ind. Lond. Suppl. 1: 375. 1941; Bennet, Fl. Howrah 98--100. 1976; Holm, Pancho, Herberger, & Plucknett, Geogr. Atlas World Weeds 148. 1979; Mold., Phytologia 41: 422. 1979; Mold., Phytol. Mem. 2: 261, 272, 285, 288, 290, 307, 314, 326, & 600. 1980.
Additional illustrations: Fyson, Journ. Indian Bot. 2: pl. 19. 1921; Fyson, Indian Sp. Erioc. pl. 19. 1923.
Lecomte (1912) cites for this species only unnumbered collections of Pierre and of Thorel from Cochinchina.
Bennet (1976) gives a good description of this species, giving its distribution in west Bengal as "rare" in "paddy-fields with a thin layer of water or moist fields without water; sometimes in other marshy areas", flowering there from November to January. Keenan and his associates found it growing mixed with sedges and other herbs in wet depressions in Tenasserim, where they report it "plentiful", 4--6 inches tall, with white inflorescences, at 800 feet altitude, flowering and fruiting in October.
The Padhye 4, distributed as this species, seems to be E. humile Mold. instead.
Additional citations: BURMA: Tenasserim: Keenan, Aung, & Rule 1646 in part (E--2620010).

ERIOCAULON INFIRMUM var. KURZII (Fyson) Mold.
Additional bibliography: Fyson, Indian Sp. Erioc. pl. 20. 1923; Worsdell, Ind. Lond. Suppl. 1: 375. 1941; Mold., Phytologia 29: 200. 1974; Mold., Phytol. Mem. 2: 272 & 600. 1980.
Additional illustrations: Fyson, Indian Sp. Erioc. pl. 20. 1923.

ERIOCAULON INFIRMUM var. PUBERULENTUM (Mold.) Van Royen
Additional bibliography: Mold., Phytologia 41: 422. 1979; Mold., Phytol. Mem. 2: 307, 314, 326, & 600. 1980.

ERIOCAULON INSULARE Ruhl.
Additional bibliography: Mold., Phytologia 36: 480. 1977; Mold., Phytol. Mem. 2: 89, 91, & 600. 1980.

ERIOCAULON INTERMEDIUM Körn.
Additional bibliography: Fyson, Indian Sp. Erioc. pl. 2. 1923; Worsdell, Ind. Lond. Suppl. 1: 375. 1941; Anon., Kew Bull. Gen. Ind. 111. 1959; Mold., Phytologia 29: 200--201, 226, & 227 (1974) and 33: 13. 1976; Giulietti, Bol. Bot. Univ. S. Paulo 6: 44. 1978; Mold., Phytol. Mem. 2: 261, 268, 285, 292, 314, & 600. 1980.

Additional illustrations: Fyson, Indian Sp. Erioc. pl. 2. 1923.
Lecomte (1912) cites for this species only an unnumbered Pierre collection from Cochinchina, Vietnam.

ERIOCAULON INTRUSUM Meikle
Additional bibliography: Mold., Phytologia 41: 422. 1979; Mold., Phytol. Mem. 2: 212, 402, & 600. 1980.

ERIOCAULON INUNDATUM Mold.
Additional bibliography: Mold., Phytologia 41: 422--423. 1979; Mold., Phytol. Mem. 2: 205, 222, & 600. 1980.

ERIOCAULON INYANGENSE Arwidsson
Additional & emended bibliography: Norlindh & Weimarck, Bot. Notiser 1934: 83 & 85. 1934; Worsdell, Ind. Lond. Suppl. 1: 375. 1941; Mold., Phytologia 24: 467. 1972; Mold., Phytol. Mem. 2: 237 & 600. 1980.
Illustrations: Norlindh & Weimarck, Bot. Notiser 1934: 83 & 85. 1934.

ERIOCAULON IRREGULARE Meikle
Additional bibliography: Mold., Phytologia 41: 412 & 423. 1979; Mold., Phytol. Mem. 2: 207, 208, 401, & 600. 1980.

ERIOCAULON JAPONICUM Körn.
Additional bibliography: Mold., Phytologia 24: 467. 1972; Mold., Phytol. Mem. 2: 301 & 600. 1980.

ERIOCAULON JAUENSE Mold.
Additional bibliography: Mold., Phytologia 41: 423. 1979; Mold., Phytol. Mem. 2: 115, 401, & 600. 1980.

ERIOCAULON JOHNSTONII Ruhl.
Additional bibliography: Mold., Phytologia 32: 496 (1976) and 34: 274. 1976; Mold., Phytol. Mem. 2: 252, 404, & 600. 1980.
Additional citations: MASCARENE ISLANDS: Mauritius: Lorence M.33 (E--2223405).

ERIOCAULON JORDANI (Mold.) Meikle
Additional bibliography: Mold., Phytologia 41: 423. 1979; Mold., Phytol. Mem. 2: 208 & 600. 1980.

ERIOCAULON KAINANTENSE Masamune
Additional bibliography: Mold., Phytologia 24: 467. 1972; Mold., Phytol. Mem. 2: 281 & 600. 1980.

ERIOCAULON KATHMANDUENSE Satake
Additional bibliography: Mold., Phytologia 24: 467--468. 1972; Mold., Phytol. Mem. 2: 257 & 600. 1980.

ERIOCAULON KATOI Onuma
Additional bibliography: Mold., Phytologia 24: 468. 1972; Mold.,

Phytol. Mem. 2: 301 & 600. 1980.

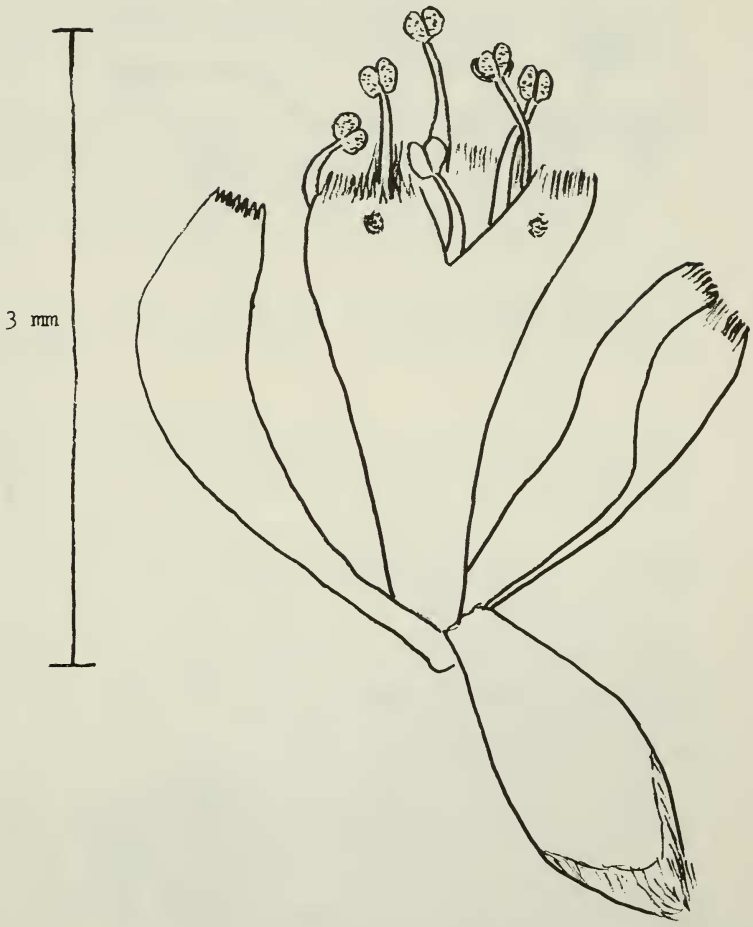
ERIOCAULON KENGII Ruhl.
Additional bibliography: Mold., Phytologia 26: 26--27. 1973; Mold., Phytol. Mem. 2: 278 & 600. 1980.

ERIOCAULON KINABALUENSE Van Royen
Additional bibliography: Mold., Phytologia 24: 468 (1972), 36: 42 (1977), and 37: 496. 1977; Mold., Phytol. Mem. 2: 314, 400, & 600. 1980.
Additional citations: GREATER SUNDA ISLANDS: Sabah: Clemens & Clemens 51120 (Mi).

ERIOCAULON KINLOCHII Mold.
Additional bibliography: Mold., Phytologia 29: 20. 1974; Mold., Phytol. Mem. 2: 74, 78, & 600. 1980.

ERIOCAULON KIUSIANUM Maxim.
Additional bibliography: Mold., Phytologia 24: 468. 1972; Mold., Phytol. Mem. 2: 281, 301, & 600. 1980; Mold., Phytologia 53: 280. 1983.
The Tanaka & Shimada 13574, previously cited as E. kiusianum or E. cinereum R. Br., is now regarded as representing E. merrillii Ruhl. instead.

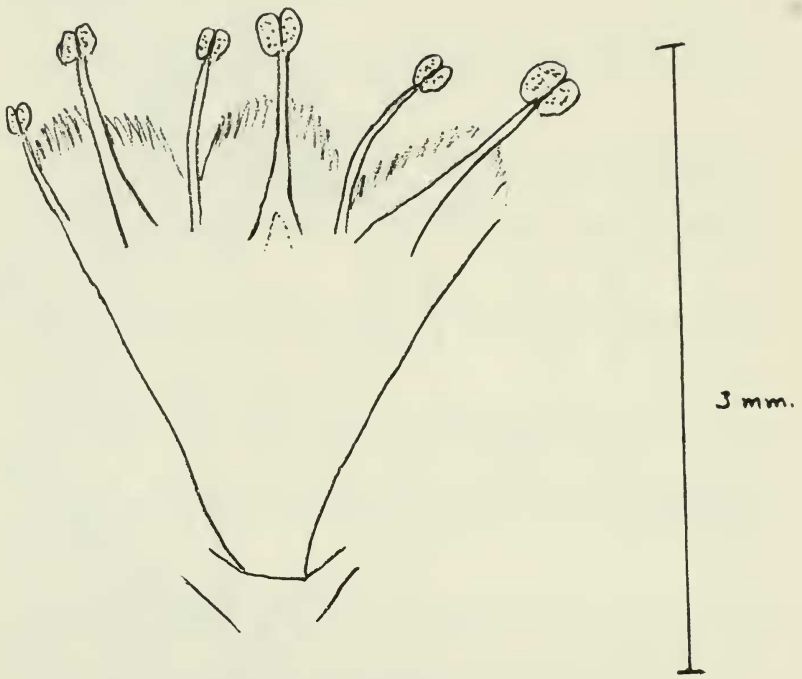
ERIOCAULON KLOTZSCHII Mold.
Additional bibliography: Mold., Phytologia 36, 480. 1977; Mold., Phytol. Mem. 2: 115, 121, & 600. 1980; Mold., Phytologia 53: 271. 1983.
Most of the specimens cited below were distributed as and/or previously cited by me as E. tenuifolium Klotzsch or as E. atabapense Mold., very similar taxa, possibly not specifically distinct.
Collectors have found this plant growing in white silt or sand savannas, especially in damp patches thereon, where it is often locally abundant. Huber and Tillett refer to it as "very common" on wet savannas near morichal, at 95--140 m. altitude. Collectors describe it as an herb with leaves in basal rosettes, the leaves rich-green, linear, and to 2 inches long, the scapes 10--12 inches tall with a single, terminal, globular head of white or grayish-white "flowers". They have found it in both flower and fruit in January, May, June, October, and November.
The 3 accompanying drawings are based on Davidse 17108 by courtesy of the collector.
Additional citations: VENEZUELA: Amazonas: Davidse, Huber, & Tillett 17108 (E--2769550); O. Huber 2041 (Ld), 3106 (Ld), 6106 (Ld); Huber & Tillett 2780 (Ld), 5559 (Ld); Maguire, Wurdack, & Keith 41890 (N, S, S); Steyermark & Bunting 103228 (Ld, S). GUYANA: Goodland 515 (N, W--2548127); Herb. Forest Dept. Br. Guian. 7656 [field no. G.641] (N); A. C. Smith 2280 (N, S). BRAZIL: Roraima: Prance, Steward, Ramos, & Farias 9177 (Ac, N, S).



Eriocaulon klotzschii Mold.

Mature staminate flower

Stamens 6, in two whorls. Staminodes 3, each attached to inner side of inner tepal. Pistillode present.



Staminate flower (corolla tube cut open)

Young staminate flower

Eriocaulon klotzschii Mold.

Pistillate flowers apparently absent

ERIOCAULON KLOTZSCHII f. PROLIFERUM (Mold.) Mold., stat. nov.

Synonymy: Eriocaulon brevifolium var. proliferum Mold. in Maguire & Wurdack, Mem. N. Y. Bot. Gard. 9: 278. 1957. Eriocaulon klotzschii var. proliferum (Mold.) Mold., Phytologia 18: 250. 1969.

Bibliography: Mold. in Maguire & Wurdack, Mem. N. Y. Bot. Gard. 9: 278. 1957; Mold., Bull. Jard. Bot. Brux. 27: 130. 1957; Mold., Phytologia 17: 452 (1968), 18: 250 (1969), 19: 341 (1970), and 24: 468. 1972; Mold., Phytol. Mem. 2: 115 & 600. 1980.

Recent collectors have encountered this plant in a small morichal on white sand savannas, at 100 m. altitude, in both flower and fruit in April and May, describing the "flowers" as white.

Additional citations: VENEZUELA: Amazonas: Davidse, Huber, & Tillett 16905a (Ld); Huber, Tillett, & Davidse 3710 (Ve); Maguire & Wurdack 34595 (N--type).

ERIOCAULON KOERNICKEI Britten

Additional & emended bibliography: Walp., Ann. Bot. Syst. 5: 927 (1860) and 6: 1171. 1861; Mold., Phytologia 29: 201--202 (1974) and 30: 342. 1975; Mold., Phytol. Mem. 2: 141 & 600. 1980.

ERIOCAULON KÖRNICKIANUM Van Heurck & Muell.-Arg.

Additional synonymy: Eriocaulon kornickianum Van Heurch & Muell. ex R. J. & C. S. Taylor in R. J. Taylor, New Rare Infr. Coll. Pl. [Herb. SE. Okla. St. Univ. Publ. 2:] 44. 1978. Eriocaulon kornickianum "Van Heurck & Muell.-Arg. in Van Heurck." apud Kral in Godfrey & Wooten, Aquat. Wet. Pl. SE. U. S. 515. 1979.

Additional bibliography: R. J. & C. S. Taylor in R. J. Taylor, New Rare Infr. Coll. Pl. [Herb. SE. Okla St. Univ. Publ. 2:] 44--46, 85, 100, & 101, fig. 4. 1978; E. B. Sm., Atlas Annot. List, imp. 1, 421 (1978) and imp. 2, 421. 1979; Kral in Godfrey & Wooten, Aquat. Wetl. Pl. SE. U. S. 504, 505, 515, 517, & 518, fig. 300. 1979; Mold., Phytologia 41: 423--424. 1979; J. T. & R. Kartesz, Syn. Checklist Vasc. Fl. 2: 198. 1980; Mold., Phytol. Mem. 2: 40, 46, 48, 401, & 600. 1980; Duncan & Kartesz, Vasc. Fl. Ga. 36. 1981.

Additional illustrations: R. J. & C. S. Taylor in R. J. Taylor, New Rare Infr. Coll. Pl. [Herb. Okla. St. Univ. Publ. 2:] 45, fig. 4. 1978; Kral in Godfrey & Wooten, Aquat. Wetl. Pl. SE. U. S. 517, fig. 300. 1979.

The Taylors (1978) call this plant the "small-headed pipewort", listing it only from Muskogee and Pushtemaha Counties in Oklahoma, noting that they are certain that the Muskogee locality is no longer extant and that the species has been proposed for inclusion in the national list of endangered species. They describe its habitat as "wet native prairie". Smith (1978) lists it from Benton, Logan, Madison, and Saline Counties, Arkansas.

Additional citations: OKLAHOMA: Pushmataha Co.: J. Taylor 24276 (Ne--136917), 24419 (Ne--136960).

ERIOCAULON KURTZII Tomlinson
Additional bibliography: Mold., Phytologia 24: 469 (1972) and 25: 235. 1973; Mold., Phytol. Mem. 2: 301 & 600. 1980.

ERIOCAULON KUSIROENSE Miyabe & Kudo
Additional bibliography: Mold., Phytologia 24: 469. 1972; Mold., Phytol. Mem. 2: 301 & 600. 1980.

ERIOCAULON KWANTUNGENSE Ruhl.
Additional bibliography: Mem., Phytologia 26: 27. 1973; Mold., Phytol. Mem. 2: 278 & 600. 1980.

ERIOCAULON LACUSTRE Ruhl.
Additional bibliography: Mold., Phytologia 36: 480. 1977; Mold., Phytol. Mem. 2: 89 & 601. 1980.

ERIOCAULON LANATUM H. Hess
Additional bibliography: Mold., Phytologia 24: 469. 1972; Mold., Phytol. Mem. 2: 233 & 601. 1980.

ERIOCAULON LANCEOLATUM Miq.
Additional bibliography: Fyson, Indian Sp. Erioc. pl. 23. 1923; Worsdell, Ind. Lond. Suppl. 1: 375. 1941; Mold., Phytologia 32: 497. 1976; Mold., Phytol. Mem. 2: 261 & 601. 1980.
Additional illustrations: Fyson, Indian Sp. Erioc. pl. 23. 1923.

ERIOCAULON LANCEOLATUM var. PILOSUM Mold.
Additional bibliography: Mold., Phytologia 29: 202. 1974; Bole & Almeida, Journ. Bomb. Nat. Hist. Soc. 74: 226. 1977; Mold., Phytol. Mem. 2: 261 & 601. 1980.

ERIOCAULON LANIGERUM H. Lecomte
Additional bibliography: Mold., Phytologia 36: 480 & 492. 1977; Mold., Phytol. Mem. 2: 292 & 601. 1980.
Lecomte (1912) cites for this species only unnumbered Pierre and Thorel collections from Cochinchina.

ERIOCAULON LAOSENSE Mold.
Additional bibliography: Mold., Phytologia 24: 470 (1972), 35: 109--111 (1977), and 36: 38. 1977; Mold., Biol. Abstr. 63: 6590. 1977; Mold., Phytol. Mem. 2: 290 & 601. 1980.

ERIOCAULON LAOSENSE var. MAXWELLII Mold.
Additional bibliography: Mold., Biol. Abstr. 63: 6590. 1977; Mold., Phytologia 36: 480. 1977; Mold., Phytol. Mem. 2: 285 & 601. 1980.

ERIOCAULON LASIOLEPIS Ruhl.
Additional bibliography: Mold., Phytologia 24: 470. 1972; Mold., Phytol. Mem. 2: 296 & 601. 1980.

ERIOCAULON LATIFOLIUM J. E. Sm.

Additional & emended bibliography: C. Muell. in Walp., Ann. Bot. Syst. 5: 926 & 943--945. 1860; Mold., Phytologia 41: 424. 1979; Mold., Phytol. Mem. 2: 200, 207--209, 220, 233, 235, 402, 404, & 601. 1980.

ERIOCAULON LATIFOLIUM f. PROLIFERUM Mold.

Additional bibliography: Mold., Phytologia 41: 424. 1979; Mold., Phytol. Mem. 2: 205 & 601. 1980.

ERIOCAULON LAXIFOLIUM Körn.

Additional bibliography: Mold., Phytologia 24: 470. 1972; Mold., Phytol. Mem. 2: 141 & 601. 1980.

ERIOCAULON LEPIDUM T. Koyama

Additional bibliography: Mold., Phytologia 24: 470. 1972; Mold., Phytol. Mem. 2: 285 & 601. 1980.

ERIOCAULON LEPTOPHYLLUM Kunth

Additional bibliography: Mold., Phytologia 41: 425. 1979; Mold., Phytol. Mem. 2: 141, 180, & 601. 1980.

Additional citations: BRAZIL: Minas Gerais: Irwin, Onishi, Fonsêca, Souza, Santos, & Ramos 25641 (W--2801664). Paraná: Reitz & Klein 17618 (W--2548325).

ERIOCAULON LEUCOGENES Ridl.

Additional bibliography: Mold., Phytologia 36: 480. 1977; Mold., Phytol. Mem. 2: 314, 326, & 601. 1980.

Recent collectors describe this plant as having rather fleshy bright-green or yellowish-green leaves, gray-white inflorescences, dark-gray or blackish-gray involucres, and greenish-white "flowers". They have found it growing in damp shaded places and "common in wet blang", often forming small dense cushions or loose to dense tussocks, at 2300--3420 m. altitude, in both flower and fruit from February to May.

Additional citations: GREATER SUNDA ISLANDS: Sumatra: Wilde & Wilde-Duyfjes 15329 (E--2418248), 15368 (E--2418238), 16273 (E--2418722), 16887 (E--2418287). MOUNTED CLIPPINGS: Ridl., Trans. Linn. Soc. Lond. Bot. 9: 240. 1916 (W).

ERIOCAULON LEUCOMELAS Steud.

Additional & emended bibliography: C. Muell. in Walp., Ann. Bot. Syst. 5: 926 & 941 (1860) and 6: 1171. 1861; Anon., Kew. Bull. Gen. Ind. 111. 1959; Mold., Phytologia 41: 425. 1979; Mold., Phytol. Mem. 2: 261, 272, 401, & 601. 1980.

Keenan and his associates found this plant growing in wet crevices on a rock face, 1200--2300 feet altitude, in both flower and fruit in October, describing the inflorescences as white.

Additional citations: BURMA: Tenasserim: Keenan, Aung, & Rule 1623 (E--2624666).

ERIOCAULON LIGULAEFOLIUM Alston

Additional bibliography: Mold., Phytologia 29: 202--203. 1974; Mold., Phytol. Mem. 2: 268 & 601. 1980.

ERIOCAULON LIGULATUM (Vell.) L. B. Sm.

Additional bibliography: Pfeiffer, Nom. Bot. 1 (2): 1150. 1874; Ruhl. in Wettstein, Denkschr. K. Akad. Wiss. Wien Math.-Nat. 79: 87. 1908; Lotsy, Vortr. Bot. Stammesges. 3 (1): 706 & 964, fig. 480 (3) & (4). 1911; Mold., Phytologia 36: 481. 1977; Mold., Phytol. Mem. 2: 141, 353, 400--402, 426, & 601. 1980.

Additional illustrations: Lotsy, Vortr. Bot. Stammesges. 3 (1): 706, fig. 480 (3) & (4). 1911.

Recent collectors have encountered this species in brejo (sedge meadows) on campos, flowering and fruiting in July.

Additional citations: BRAZIL: Paraná: Dombrowski & Neto 104 (Ld); Hatschbach 11320 (Eu--37371), 32591 (Ba); Reitz & Klein 13403 (N).

ERIOCAULON LINEARE Small

Additional bibliography: Worsdell, Ind. Lond. Suppl. 1: 375. 1941; Kral in Godfrey & Wooten, Aquat. Wetl. Pl. SE. U. S. 504, 505, 508, 510, 512, 513, & 515, fig. 297. 1979; Mold., Phytologia 41: 425 (1979) and 44: 134. 1979; J. T. & R. Kartesz, Syn. Checklist Vasc. Fl. 2: 197. 1980; Mold., Phytol. Mem. 2: 19, 22, 25, 26, 402, & 601. 1980; Duncan & Kartesz, Vasc. Fl. Ga. 36. 1981; Mold., Phytologia 52: 111 & 112 (1982) and 53: 282. 1983.

Additional illustrations: Kral in Godfrey & Wooten, Aquat. Wetl. Pl. SE. U. S. 512, fig. 297. 1979.

Godfrey notes for his Franklin County, Florida, collection: "in borrow-peat pond, completely covering the substrate of open parts of the pond, the substrate very soft and loose, leaves very soft and flaccid, scapes flaccid below water surface and not at all rigid above water surface, water 5--8 cm. deep" and found it in both flower and fruit in October. Other collectors have encountered it in shallow grassy limesink ponds, in wet pinelands, and in shallow water of open ponds or borrow-pits, in both flower and fruit in March, June, and October.

Thorne 6551 appears to represent an extremely short-leaved form of the species.

Material of E. lineare has been widely misidentified and distributed in herbaria as E. septangulare With. On the other hand, the Stoutmire 1063, distributed as E. lineare, actually is E. compressum Lam., while B. Williams s.n. [5-2-74] is Syngonanthus flavidulus (Michx.) Ruhl.

Additional citations: GEORGIA: Baker Co.: Thorne 7030 (It). Calhoun Co.: Thorne 4696 (It). Decatur Co.: Thorne 3957 (It), 6551 (It). Dougherty Co.: Thorne 5022 (It). Lee Co.: Thorne & Muenscher 8994 (It). FLORIDA: Franklin Co.: Godfrey 76828 (W--2902231). Leon Co.: Wiegand & Manning 681 (It). ALABAMA: Covington Co.: Nieland 34 (N). MISSISSIPPI: George Co.: Thomas, Al-

len, & Landry 43057 (Ne--103100).

ERIOCAULON LINEARE f. GIGAS (Mold.) Mold., Phytologia 44: 134. 1979.

Additional bibliography: Mold., Phytologia 34: 402 (1976) and 44: 134. 1979; Mold., Phytol. Mem. 2: 22, 402, & 601. 1980; Mold., Phytologia 52: 111 & 112. 1982.

The Thorne collection, cited below, was growing in 2 feet of water and exhibits both very long peduncles and leaves; the Haynes collection exhibits very long scapes and one plant also has very long leaves. These collections were originally distributed, respectively, as E. septangulare With. and E. lineare Small.

Additional citations: GEORGIA: Decatur Co.: Thorne 4475 (It). ALABAMA: Covington Co.: R. R. Haynes 7555 (N).

ERIOCAULON LINEARIFOLIUM Körn.

Additional bibliography: Mold., Phytologia 41: 425. 1979; Mold., Phytol. Mem. 2: 141, 174, & 601. 1980.

Additional citations: BRAZIL: Bahia: Anderson, Stieber, & Kirkbride 36810 (W--2709601). Mato Grosso: Hatschbach & Guimarães 24560 (W--2705921).

ERIOCAULON LIVIDUM F. Muell.

Additional bibliography: C. A. Gardn., Enum. Pl. Austral. Occid. 1: 17. 1930; T. B. Muir, Muelleria 2: 140. 1972; Mold., Phytologia 41: 425 & 455. 1979; Mold., Phytol. Mem. 2: 336 & 601. 1980.

ERIOCAULON LONGICUSPE Hook. f.

Additional bibliography: Fyson, Indian Sp. Erioc. 45, pl. 25. 1923; Worsdell, Ind. Lond. Suppl. 1: 375. 1941; Mold., Phytologia 41: 425. 1979; Mold., Phytol. Mem. 2: 268, 400, & 601. 1980.

Additional illustrations: Fyson, Indian Sp. Erioc. 45, pl. 25. 1923.

ERIOCAULON LONGICUSPE var. ZEYLANICUM Mold.

Additional bibliography: Mold., Phytologia 41: 425. 1979; Mold., Phytol. Mem. 2: 268 & 601. 1980.

ERIOCAULON LONGIPEDUNCULATUM H. Lecomte

Additional bibliography: Mold., Phytologia 41: 425. 1979; Mold., Phytol. Mem. 2: 331 & 601. 1980.

ERIOCAULON LONGIPETALUM Rendle

Additional bibliography: Mold., Phytologia 29: 205. 1974; Mold., Phytol. Mem. 2: 233 & 601. 1980.

ERIOCAULON LONGIROSTRUM Alv. Silv. & Ruhl.

Additional bibliography: Mold., Phytologia 24: 473. 1972; Mold., Phytol. Mem. 2: 141 & 601. 1980.

ERIOCAULON LUSTRATUM Van Royen, Alpine Fl. N. Guin. 2: 828--829, fig. 282 A--F. 1979.

Bibliography: Van Royen, Alpine Fl. N. Guin. 2: 825 & 828--829, fig. 282 A--F. 1979; Mold., Phytologia 50: 254 & 270. 1982.

Illustrations: Van Royen, Alpine Fl. N. Guin. 2: 829, fig. 282 A--F. 1979.

Van Royen (1979) has based this species on Coode NGF.40276 from the northern and southern slopes of Mt. Giluwe, Papua, deposited in the Bishop Museum herbarium. He cites also Van Royen 11254 and Willis s.n., asserting that this endemic plant is found "Partly submerged, in pools of an alpine bog or in boggy ground on steep slopes", at 3200--3720 m. altitude, in both flower and fruit in July.

Citations: MOUNTED ILLUSTRATIONS: Van Royen, Alpine Fl. N. Guin. 2: 829, fig. 282 A--F. 1979 (Ld).

ERIOCAULON LUZULAEFOLIUM Mart.

Additional & emended bibliography: Miq., Fl. Ind. Bat. Suppl. 1: 268. 1860; Hosseus, Beih. Bot. Centralbl. 28 (2): 369--373. 1911; Craib, Kew Bull. Misc. Inf. 1912: 421. 1912; Fyson, Indian Sp. Erioc. pl. 8. 1923; Worsdell, Ind. Lond. Suppl. 1: 376. 1941; Holm, Pancho, Herberger, & Plucknett, Geogr. Atlas World Weeds 148. 1979; Mold., Phytologia 41: 425. 1979; Mold., Phytol. Mem. 2: 257, 261 268, 270, 272, 285, 292, & 601. 1980.

Additional illustrations: Fyson, Indian Sp. Erioc. pl. 8. 1923.

Miquel (1860) reports the vernacular name, "sianga", for this plant. Craib (1912) -- misspelled "Graib" -- cites Kerr 1635 & 1932 from Thailand, where the species is said to be found in swamps and at the edges of streams, at 330--420 m. altitude. Recent collectors have encountered it in open wet grasslands, on clay soil of moist savannas, and "gregarious in moist places in dry deciduous forests with lalang grass on limestone", reporting the "styles white", at 800--1100 m. altitude, in both flower and fruit in September and November.

Additional citations: INDIA: Maharashtra: Padhye 2 (Ld), 6 (Ld). THAILAND: Bousekom, Phengkhlai, Geesink, & Wongwan 3602 (E--2383276), 4261 (E--2362529); Charoenphol, Larsen, & Warncke 4684 (E--2368145, E--2588132). MOUNTED ILLUSTRATIONS: Schnitzl., Iconogr. 1: pl. 46, fig. 2 & 5. 1845 (Be--381098).

ERIOCAULON MACROBOLAX Mart.

Additional bibliography: Mold., Phytologia 29: 206. 1974; Mold., Phytol. Mem. 2: 141 & 601. 1980; Mold., Phytologia 48: 253. 1981.

The Macedo 2589 & 2620, previously reported by me as E. macrobolax, are actually, instead, the newly described E. singulare Mold.

ERIOCAULON MACROPHYLLUM Ruhl.

Additional bibliography: Mold., Phytologia 29: 206. 1974; Mold., Phytol. Mem. 2: 314 & 601. 1980.

ERIOCAULON MACULATUM Schinz

Additional bibliography: Mold., Phytologia 41: 426 & 458. 1979;

Mold., Phytol. Mem. 2: 245 & 601. 1980.

ERIOCAULON MADAGASCARIENSE Mold.
Additional bibliography: Mold., Phytologia 24: 474. 1972; Mold., Phytol. Mem. 2: 250 & 601. 1980.

ERIOCAULON MAGNIFICUM Ruhl.
Additional bibliography: Worsdell, Ind. Lond. Suppl. 1: 375. 1941; Mold., Phytologia 36: 482. 1977; Klein, Sellowia 31: 132. 1979; Mold., Phytol. Mem. 2: 141, 353, 401, & 601. 1980.
Additional citations: BRAZIL: Rio Grande do Sul: Deslandes s.n. [Herb. Silveira 220; Herb. Mus. Rio Jan. 126565] (W--2700823). Santa Catarina: Reitz & Klein 857 (W--2141593). MOUNTED CLIPPINGS: Alv. Silv., Fl. Mont. 1: 421. 1928 (Ld, N, W).

ERIOCAULON MAGNIFICUM var. GOYAZENSE Mold.
Additional bibliography: Mold., Phytologia 29: 206. 1974; Mold., Phytol. Mem. 2: 141 & 601. 1980.

ERIOCAULON MAGNUM Abbiatti
Additional bibliography: Mold., Phytologia 41: 426. 1979; Mold., Phytol. Mem. 2: 177, 186, & 601. 1980.

ERIOCAULON MAJUSCULUM Ruhl.
Additional bibliography: Ruhl. in Wettstein, Denkschr. K. Akad. Wiss. Wien Math.-Nat. 79: 87. 1908; Fedde & Schust., Justs Bot. Jahresber. 39 (2): 10. 1913; Mold., Phytologia 36: 482 (1977) and 37: 31. 1977; Mold., Phytol. Mem. 2: 141 & 601. 1980.
Recent collectors have found this plant growing as an herb among marshy vegetation at the borders of lakes with Sphagnum, at 2100 m. altitude, in anthesis in October.
Additional citations: BRAZIL: Rio de Janeiro: Maas & Martinelli 3202 (Ld).

ERIOCAULON MAJUSCULUM var. COMPOSITUM Ruhl., Denkschr. K. Akad. Wiss. Wien Math.-Nat. 79: 87. 1908.
Bibliography: Ruhl., Denkschr. K. Akad. Wiss. Wien Math.-Nat. 79: 87. 1908; Fedde & Schust., Justs Bot. Jahresber. 39 (2): 10. 1913; Mold., Phytol. Mem. 2: 141 & 601. 1980.
Ruhland (1908) describes this taxon as "capitulis per paucos compositis. -- Für die Gattung sehr auffällig", It is based on an unnumbered Wettstein collection from "Sumpfige Stellen des Camp bei Cerqueira-Cesar; 500 m ü. d. M.; VII, 1901" in Brazil.

ERIOCAULON MALAISSEI Mold.
Additional bibliography: Mold., Phytologia 32: 498--499. 1976; Mold., Phytol. Mem. 2: 220 & 601. 1980.

ERIOCAULON MALAISSEI f. VIVIPARUM Mold.
Additional bibliography: Mold., Phytologia 24: 475--476. 1972; Mold., Phytol. Mem. 2: 220 & 601. 1980.

ERIOCAULON MAMFEËNSE Meikle
Synonymy: Eriocaulon manfeënse Meikle ex Mold., Phytologia 32: 499, sphalm. 1976.
Additional bibliography: Mold., Phytologia 41: 426. 1979; Mold., Phytol. Mem. 2: 214 & 601. 1980.

ERIOCAULON MANNII N. E. Br.
Additional bibliography: Mold., Phytologia 29: 207. 1974; Mold., Phytol. Mem. 2: 216, 232, & 601. 1980.

ERIOCAULON MARGARETAE Fyson
Additional bibliography: Mold., Phytologia 29: 207. 1974; Bole & Almeida, Journ. Bomb. Nat. Hist. Soc. 74: 226--227. 1977; Mold., Phytol. Mem. 2: 261 & 601. 1980.
Bole & Almeida (1977) have selected Sedgwick 2979 as the lectotype of this species from among the two collections originally cited by Fyson (1923). They designate Fyson 3839 as a syntype.

ERIOCAULON MATOPENSE Rendle
Additional bibliography: Mold., Phytologia 24: 476. 1972; Mold., Phytol. Mem. 2: 237 & 601. 1980.

ERIOCAULON MEGAPOTAMICUM Malme
Additional bibliography: Mold., Phytologia 36: 479 & 482. 1977; Mold., Phytol. Mem. 2: 141 & 601. 1980.
Additional citations: BRAZIL: Santa Catarina: Smith, Reitz, & Klein 7683 (W--2267565). MOUNTED CLIPPINGS: Malme, Arkiv Bot. 26A (9): 8. 1934 (W).

ERIOCAULON MEIKLEI Mold.
Additional bibliography: Mold., Phytologia 41: 426. 1979; Mold., Phytol. Mem. 2: 200, 205, 207, 212, & 601. 1980.

ERIOCAULON MELANOCEPHALUM Kunth
Additional synonymy: Eriocaulon usterianum Beauverd, Bull. Herb. Boiss., ser. 2, 8: 284--287, fig 9 B. 1908. Eriocaulon melanocephalum ssp. usterianum Beauverd, Bull. Herb. Boiss., ser. 2, 8: 284--287, fig. 98 15--27. 1908. Eriocaulon melanocephalum var. usterianum Beauverd ex Angely, Fl. Anal. Fitogeogr. Est. S. Paulo, ed. 1, 6: 1157. 1972.
Additional & emended bibliography: Beauverd, Bull. Herb. Boiss., ser. 2, 8: 284--287, fig. 98 15--28. 1908; Prain, Ind. Kew. Suppl. 4, imp. 1, 82 (1913) and imp. 2, 82. 1938; Mold., Résumé 51, 66, 71, 78, 89, 285, 293, 309, & 481. 1959; Mold., Phytologia 18: 243, 279--280, & 301--302. 1969; Mold., Fifth Summ. 2: 493, 495, 515, 546, 586, & 938. 1971; Mold., Phytologia 24: 476--477 (1972) and 36: 482. 1977; Giulietti, Bol. Bot. Univ. S. Paulo 6: 39--47, fig. 3 & 4. 1978; Mold., Phytologia 41: 414 (1979) and 44: 384. 1979; Mold., Phytol. Mem. 2: 89, 108, 115, 121, 126, 142, 402, & 601. 1980; Mold., Phytologia 50: 247, 260, & 270. 1982.
Additional & emended illustrations: Beauverd, Bull. Herb. Boiss.,

ser. 2, 8: 285, fig. 98 15--28. 1908; Giulietti, Bol. Bot. Univ. S. Paulo 6: 42, fig. 3 & 4. 1978.

Recent collectors describe this species as an aquatic plant immersed in streams 30 cm. deep and floating in the water of an agarapé, the heads dark gray-green or blackish, the "flowers" white, and have found it growing at 80 m. altitude, in flower in August and November.

Material of this species has been misidentified and distributed in some herbaria as E. spruceanum f. fluitans Herzog, an as yet poorly understood taxon.

Additional citations: COLOMBIA: Meta: Pennell 1635 (W--1041854), 1637 (W--1041855). VENEZUELA: Amazonas: O. Huber 982 (Ld), 2730 (Ld), 4684 (Ld). Bolívar: Steyermark 59256 (W--1987403); Wurdack & Monachino 40912 (W--2223446). Guárico: Delascio, Montes, & Davidse 11537 (E--2994265). FRENCH GUIANA: Hock s.n. [8 Mars 1962] (Cy, Cy, Ld). BRAZIL: Amapá: Austin, Nauman, Rabelo, Rosário, & Santos 7302 (Ld, N).

ERIOCAULON MELANOCEPHALUM f. LONGIPES (Griseb.) Mold., Phytologia 44: 384. 1979.

Additional synonymy: Eriocaulon melanocephalum var. longipes Griseb., Cat. Pl. Cub. 226. 1866.

Additional bibliography: Mold., Phytologia 32: 499 (1976) and 44: 384. 1979; Mold., Phytol. Mem. 2: 89, 402, & 601. 1980.

ERIOCAULON MELANOCEPHALUM ssp. USTERIANUM Beauverd

This taxon is now regarded as a synonym of typical E. melanocephalum Kunth, which see.

ERIOCAULON MELANOLEPIS Alv. Silv.

Additional bibliography: Worsdell, Ind. Lond. Suppl. 1: 376. 1941; Mold., Phytologia 29: 207. 1974; Mold., Phytol. Mem. 2: 142 & 601. 1980.

Additional citations: MOUNTED ILLUSTRATIONS: Alv. Silv., Arch. Mus. Nac. Rio Jan. 23: 163, pl. 5. 1921 (Ld, W); Alv. Silv., Fl. Mont., pl. 6. 1928 (Ld, W).

ERIOCAULON MERRILLII Ruhl.

Additional synonymy: Eriocaulon merrillii var. merrillii [Ruhl.] ex Chang, Fl. Taiwan 5: 183. 1978. Eriocaulon kiusianum sensu Mold. ex Chang, Fl. Taiwan 5: 183, in syn. [not E. kiusianum Maxim., 1893].

Additional bibliography: Huang, Taiwania 15: 152. 1970; Mold., Phytologia 34: 397, 402--404, & 492 (1976) and 36: 38. 1977; Chang, Fl. Taiwan 5: [179], 183, & 185 (1978) and 6: 654 & 663. 1980; Mold., Phytol. Mem. 2: 283, 292, 303, 304, 307, 401, 402, 404, & 601. 1980; Mold., Phytologia 53: 280. 1983.

Huang (1970) describes the pollen grains of E. merrillii as 23--25 mu wide on the basis of Sasaki 327 from Taiwan. Chang (1978) reports the plant from marshes on Taiwan, citing Hsu 3345,

and listing the Philippines as its only other known distribution. He affirms that the Tanaka & Shimada 13574, previously cited by me as E. cinereum R. Br. or as E. kiusianum Maxim., actually represents E. merrillii.

Material of E. merrillii has also been distributed in some herbaria as E. formosanum Hayata.

Collectors have found E. merrillii in both flower and fruit in May.

Additional & emended citations: TAIWAN: Tanaka & Shimada 13574 (B, Ca--517642, Go, Mi, Mu, N, S).

ERIOCAULON MERRILLII var. SUISHAENSE (Hayata) Chang, Fl. Taiwan 5: 184--185, pl. 1315. 1978.

Synonymy: Eriocaulon suishaense Hayata, Icon. Fl. Formos. 10: 55, fig. 31. 1921. Eriocaulon suichaense Hayata apud Wangerin, Justs Bot. Jahresber. 49 (1): 160, sphalm. 1927. Eriocaulon suishaënse Hayata apud A. W. Hill, Ind. Kew. Suppl. 7: 89. 1929. Eriocaulon suishaense var. okinawense Satake, Journ. Jap. Bot. 15: 141. 1939. Eriocaulon nigrum var. suishaense (Hayata) Hatus. & Koyama, Journ. Jap. Bot. 31: 233. 1956. Eriocaulon nigrum var. suishaense "Hatuima & Koyama" ex Hatus., Mem. South. Indust. Sci. Inst. Kagoshima Univ. 3 (2): 123. 1962. Eriocaulon nigrum var. suishaense "Hals. & Koyuma" ex Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 191. 1969.

Bibliography: Hayata, Icon. Pl. Formos. 10: 55--56 & 272, fig. 31. 1921; Mak. & Nemoto, Fl. Jap., ed. 1, 1308. 1925; Wangerin, Justs Bot. Jahresber. 49 (1): 160. 1927; Sasaki, List Pl. Formos. 99. 1928; A. W. Hill, Ind. Kew. Suppl. 7: 89. 1929; Sasaki, Cat. Govt. Herb. 119. 1930; Mak. & Nemoto, Fl. Jap., ed. 2, 1515. 1931; Fedde, Justs Bot. Jahresber. 49 (2): 423. 1932; Masamune, Short Fl. Formos. 263. 1936; Nemoto, Suppl. Fl. Jap. 1040. 1936; Satake, Journ. Jap. Bot. 15: 141. 1939; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 6, 7, 9, 11, 12, 24, 78, & 87, fig. 1E, 28, & 5E. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 15--16, pl. 1, fig. 2. 1940; Mold., Known Geogr. Distrib. Erioc. 25 & 40. 1946; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 133, 140, & 206. 1949; Mold., Phytologia 3: 143. 1948; Sonohara, Tawada, & Amano [ed. E. H. Walker], Fl. Okin. 205. 1952; Hatus. & Koyama, Journ. Jap. Bot. 31: 233. 1956; Mold., Résumé 172, 181, 290, & 483. 1959; Hatus., Mem. South. Indust. Sci. Inst. Kagoshima Univ. 3 (2): 123. 1962; Mold., Résumé Suppl. 17: 11. 1968; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 191. 1969; Mold., Phytologia 19: 453. 1970; Mold., Fifth Summ. 1: 312 & 313 (1971) and 2: 507, 514, & 942. 1971; Mold., Phytologia 25: 81 (1972), 28: 457 (1974), 29: 232--233 (1974), and 34: 264, 393, 493, & 495. 1976; Chang, Fl. Taiwan 5: [179] & 184--185, pl. 1315 (1978) and 6: 654 & 663. 1980; Mold., Phytol. Mem. 2: 283, 303, 304, 402, 404, & 601. 1980.

Illustrations: Hayata, Icon. Pl. Formos. 10: 56, fig. 31. 1921; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 6, 7, & 11, fig. 1E, 28, & 5E. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.]

pl. 1, fig. 2. 1940; Chang, Fl. Taiwan 5: 184, pl. 1315. 1978.

Chang (1978) asserts that this variety is native to the marshes of both northern and southern Taiwan and in the Ryukyu islands. He cites from Taiwan Kawakami s.n., Masamune 27311, Sasaki s.n., and Shimada 27310. By mistake he labels his new trinomial "sp. nov." instead of "stat. nov."

Recent collectors have encountered this plant along riversides and at the edges of streams by roadsides, in both flower and fruit in July and August.

The two Walker & al. collections, cited below, were previously erroneously cited by me as E. buergerianum Körn.

Citations: RYUKYU ISLANDS: Okinawa: Walker, Sonohara, Tawada, & Amano 7120 (N); Walker, Tawada, & Amano 6490 (N). MOUNTED ILLUSTRATIONS: Chang, Fl. Taiwan 5: 184, pl. 1315. 1978 (Ld).

ERIOCAULON MESANTHEMOIDES Ruhl.

Additional bibliography: Mold., Phytologia 29: 208. 1974; Mold., Phytol. Mem. 2: 224, 226, 239, & 601. 1980.

ERIOCAULON MEXICANUM Mold.

Additional bibliography: Mold., Phytologia 24: 477. 1972; Mold., Phytol. Mem. 2: 62 & 601. 1980; Mold., Phytologia 53: 274. 1983.

Additional citations: MEXICO: Jalisco: Pringle 11202 (It--isotype).

ERIOCAULON MICROCEPHALUM H.B.K.

Additional synonymy: Eriocaulon microcephamum H.B.K. ex Latorre, Ortega, & Inca, Cienc. Naturaleza 18: 62, sphalm. 1977. Eriocaulon microcephalum Mold., in herb.

Additional bibliography: Latorre, Ortega, & Inca, Cienc. Naturaleza 18: 62. 1977; Mold., Phytologia 41: 426. 1979; Øllgaard & Balslev, Rep. Bot. Inst. Univ. Aarhus 4: 42, 61, 64, & 103. 1979; J. T. & R. Kartesz, Syn. Checklist Vasc. Fl. 2: 197. 1980; Mold., Phytol. Mem. 2: 108, 115, 128, 133, 402, & 601. 1980; Cleef, Dissert. Bot. 61: 303. 1981.

Recent collectors refer to this plant as a small, cushion-forming, cespitose, gregarious herb, with "whitish heads" and dark-green leaves, growing 1--2 inches tall, often forming mats 3--4 feet in diameter. They have encountered it submerged in small ponds in dry scrub, forming loose cushions in the shade of other plants in boggy depressions on heavily grazed páramos with such boggy depressions, small lakes, and steep escarpments, forming firm cushions in wet depressions on disturbed páramos with spring bogs dominated by large species of Carex and Juncus, in boggy depressions in Espeletia páramos dominated by cushion plants like Plantago rigida, Distichia, and Werneria and adjacent wet slopes where it forms firm cushions along streams, in wet páramo vegetation with an abundance of Espeletia hartwegiana at small springs, in xerophytic scrub 2--3 m. tall intermingled with meadows and drier grassland, and "cushion-forming in swamps near lakes, the surrounding

páramos heavily grazed by cattle, sheep, and rabbits", at altitudes of 2900--4300 meters, in flower in May and from June to September, and in fruit in May, July, and August.

Rzedowski 34274 is a mixture with something not eriocaulaceous.

Latorre and his associates (1977) list a Sodiro collection of Eriocaulon microcephalum from "los páramos cenagosos de Huagrabamba" in Pichincha, Ecuador (no. 1076). Dudley reports the species "rare in high wet grasslands" in Cuzco, Peru. Barclay & Juajibioy describe it as having "very small stems 3 cm. tall, with fine, erect leaves that are white-hairy beneath, to 5 mm. long and 0.5 mm. wide, the flowers slightly elevated above the mat on white pedicels, only brown calyxes remaining now" and found it growing on "open slopes near lake with grasses, herbs, and occasional shrubs, high humidity, continual rains, many rivulets on slopes". Of course, the "calyxes" to which he refers were doubtless the involucral bracts.

Material of this species has been misidentified and distributed in some herbaria as Paepalanthus sp. and even as "Paepalanthus sp. nov." [by Ferreira in 1978]. On the other hand, the Cutler 7038, distributed as Eriocaulon microcephalum, actually is Paepalanthus manicatus var. pulvinatus Herzog.

Additional citations: MEXICO: Federal District: J. Rzedowski 34274 in part (Mi, N). México: Pringle 13228 (It). COSTA RICA: Puntarenas: Weston 5986 (N). COLOMBIA: Cundinamarca: Cleef 4111 (W--2850660); Cuatrecasas & Idrobo 27053 (E--2613375). VENEZUELA: Apure: Steyermark, Dunsterville, & Dunsterville 101241 (N). ECUADOR: Azuay: Balslev 1227 (Ld, N, N); Camp E.2582 (W--2056991); Holm-Nielsen, Jeppesen, Løjtnant, & Øllgaard 4991 (Ac, E--2773088, Eu--55330), 5054 (Ac, E--2773089, Eu--55329, Ut--3525758). Carchi: Holm-Nielsen, Jeppesen, Løjtnant, & Øllgaard 5277 (Ac, E--2773092); Øllgaard & Balslev 8460 (Ac). Chimborazo: Øllgaard & Balslev 8949 (Ac, Ld, N, N). Cotopaxi: Balslev 1055 (Ld, N); Øllgaard & Balslev 9862 (Ac, N, N). Napo: Boske 784 (N); Øllgaard & Balslev 8901 (Ac, Ld, N, N). Pichincha: Fosberg 22447 (W--2109563). Santiago Zamora: Barclay & Juajibioy 8751 (E--2810114). Tunguragua: Asplund 9958 (W--2224158). PERU: Cuzco: Dudley 11194 (E--2152854); Vargas C. 13330 (W--2368189).

ERIOCAULON MIKAWANUM Satake & Koyama

Additional bibliography: Mold., Phytologia 24: 477. 1972; Mold., Phytol. Mem. 2: 301 & 601. 1980.

ERIOCAULON MILHOENSE Herzog

Additional bibliography: Worsdell, Ind. Lond. Suppl. 1: 376. 1941; Mold., Phytologia 26: 30. 1973; Mold., Phytol. Mem. 2: 142 & 601. 1980.

ERIOCAULON MINIMUM Lam.

Additional bibliography: Useful Pl. Jap. 3: pl. 966. 1895; A-

non., Kew Bull. Gen. Ind. 111. 1959; Mold., Phytologia 36: 483. 1977; Mold., Phytol. Mem. 2: 261, 268, 270, & 602. 1980.

Additional illustrations: Useful Pl. Jap. 3: pl. 966 (in color). 1895.

ERIOCAULON MINUSCULUM Mold.

Additional bibliography: Mold., Phytologia 24: 478. 1972; Mold., Phytol. Mem. 2: 278 & 602. 1980.

ERIOCAULON MINUTISSIMUM Ruhl.

Additional & emended bibliography: León, Fl. Cuba, imp. 1, 1: 280 & 423. 1946; Mold., Phytologia 32: 500. 1976; Mold., Phytol. Mem. 2: 89 & 602. 1980.

ERIOCAULON MINUTUM Hook. f.

Additional bibliography: Fyson, Journ. Indian Bot. 2: 139, fig. 6. 1921; Fyson, Indian Sp. Erioc. pl. 36. 1923; Worsdell, Ind. Lond. Suppl. 1: 376. 1941; Mold., Phytologia 32: 500--501. 1976; Mold., Phytol. Mem. 2: 261, 270, & 602. 1980.

Additional illustrations: Fyson, Journ. Indian Bot. 2: 139, fig. 6. 1921; Fyson, Indian Sp. Erioc. pl. 36. 1923.

ERIOCAULON MIQUELIANUM Körn.

Additional bibliography: Lecomte, Notul. Syst. 1: 192. 1909; Mak., Ill. Fl. Jap. [724]. 1924; Mak., Gensyoku Yagai-shokubutu [Nature-Col. Wild Pl.] 3: 184. 1933; Terasaki, Nippon Shokubutsu Zufu [Jap. Bot. Illust. Album] 1845. 1933; Worsdell, Ind. Lond. Suppl. 1: 376. 1941; Mold., Phytologia 34: 404 & 406. 1976; Holm, Pancho, Herberger, & Plucknett, Geogr. Atlas World Weeds 148. 1979; Mold., Phytol. Mem. 2: 301, 303, & 602. 1980.

Additional illustrations: Mak., Ill. Fl. Jap. [724]. 1924; Mak., Gensyoku Yagai-shokubutu [Nature-Col. Wild Pl.] 3: 184. 1933; Terasaki, Nippon Shokubutsu Zufu [Jap. Bot. Illust. Album] 1845. 1933; Mak., Illust. Fl. Nipp. 771, fig. 2312. 1940.

The Oh 85, distributed as E. miquelianum, actually is E. nipponicum Maxim.

Additional citations: MOUNTED ILLUSTRATIONS: Mak., Illust. Fl. Nipp. 771, fig. 2312. 1940 (Ld).

ERIOCAULON MIQUELIANUM var. ATROSEPALUM Satake

Additional bibliography: Mold., Phytologia 24: 478. 1972; Mold., Phytol. Mem. 2: 301 & 602. 1980.

ERIOCAULON MIQUELIANUM var. INVOLUCRATUM Nakai

Additional bibliography: Mold., Phytologia 24: 478. 1972; Mold., Phytol. Mem. 2: 301 & 602. 1980.

ERIOCAULON MIQUELIANUM var. LUTCHUENSE (Koidz.) T. Koyama

Additional bibliography: Mold., Phytologia 41: 426. 1979; Mold., Phytol. Mem. 2: 303, 403, & 602. 1980.

ERIOCAULON MISERRIMUM Ruhl.
Additional bibliography: Mold., Phytologia 36: 483. 1977; Mold., Phytol. Mem. 2: 91 & 602. 1980.

ERIOCAULON MISERUM Körn.
Additional & emended bibliography: Fyson, Journ. Indian Bot. 3: 13--15, pl. 47 & 48. 1922; Fyson, Indian Sp. Erioc. pl. 47 & 48. 1923; Worsdell, Ind. Lond. Suppl. 1: 376. 1941; Mold., Phytologia 41: 427. 1979; Mold., Phytol. Mem. 2: 257,261, 270, 292, & 602. 1980.
Additional & emended illustrations: Fyson, Journ. Indian Bot. 3: pl. 47 & 48. 1922; Fyson, Indian Sp. Erioc. pl. 47 & 48. 1923.
Lecomte (1912) cites for this species only an unnumbered Lecomte & Finet collection from Annam and of Bon from Tonkin, Vietnam.

ERIOCAULON MISSIONUM Castell.
Additional bibliography: Mold., Phytologia 41: 427. 1979; Mold., Phytol. Mem. 2: 186 & 602. 1980.

ERIOCAULON MITOPHYLUM Hook. f.
Additional bibliography: Mold., Phytologia 36: 483. 1977; Mold., Phytol. Mem. 2: 261, 270, & 602. 1980.

ERIOCAULON MODESTUM Kunth
Additional bibliography: Ruhl in Wettstein, Denkschr. K. Akad. Wiss. Math.-Nat. 79: 87. 1908; Hocking, Excerpt. Bot. A.23: 388. 1974; Mold., Phytologia 41: 427. 1979; Mold., Phytol. Mem. 2: 142, 180, 401, 402, & 602. 1980; Mold. in Harley & Mayo, Toward Checklist Fl. Bahia 73. 1980.
Recent collectors describe this species as a fleshy herb, to 40 cm. tall, the leaves pale-green, the involucral bracts dark, and the flowers white, and have found it growing along wet river margins and partly submerged in streams in a "general area of "sandstone, metamorphic and quartzite rock outcrops with associated marsh, damp flushes, and grassland, and some cutover mixed deciduous woodland by streams and cerrado", at 1500--1600 m. altitude, in anthesis in March.
The Dusén 2467 collection, at least on some sheets, includes some plants of f. viviparum Herzog.
Additional citations: BRAZIL: Bahia: Harley, Mayo, Storr, Santos, & Pinheiro in Harley 19651 (N); Hatschbach 45127 (Ld). Goiás: Hatschbach 43786 (Ld, W--2932035). Paraná: Dusén 2467 in part (W--2700816, W--photo).

ERIOCAULON MODESTUM var. BREVIFOLIUM Mold.
Additional bibliography: Hocking, Excerpt. Bot. A.23: 388. 1974; Mold., Phytologia 41: 427. 1979; Mold., Phytol. Mem. 2: 142 & 602. 1980.
Hatschbach has found this plant growing in brejo (sedge meadow) in both flower and fruit in August.
Additional citations: BRAZIL: Goiás: Hatschbach 43159 (Ld, W--

2931952); Irwin, Harley, & Smith 32175 (W--2709600).

ERIOCAULON MODESTUM f. GRANDIFOLIUM Herzog
Additional bibliography: Mold., Phytologia 29: 209. 1974; Mold., Phytol. Mem. 2: 142 & 602. 1980.

ERIOCAULON MODESTUM f. RIGIDIFOLIUM Herzog
Additional bibliography: Mold., Phytologia 24: 479. 1972; Mold., Phytol. Mem. 2: 142 & 602. 1980.

ERIOCAULON MODESTUM f. VIVIPARUM Herzog
Additional bibliography: Mold., Phytologia 36: 484. 1977; Mold., Phytol. Mem. 2: 142, 180, 401, 402, & 602. 1980.
The photograph of Dusén 2467 in the United States National Herbarium in Washington shows one scape representing this form among many others of the typical form.
Additional citations: BRAZIL: Paraná: Dusén 2467 in part (W--photo).

ERIOCAULON MOKALENSE Mold.
Additional bibliography: Mold., Phytologia 34: 404. 1976; Mold., Phytol. Mem. 2: 250 & 602. 1980.

ERIOCAULON MOLINAE L. O. Williams
Additional bibliography: Mold., Phytologia 32: 501 (1976) and 34: 274. 1976; Mold., Phytol. Mem. 2: 62, 75, 405, & 602. 1980.

ERIOCAULON MONOCOCCOS Nakai
Additional bibliography: Mold., Phytologia 24: 480. 1972; Mold., Phytol. Mem. 2: 301 & 602. 1980.

ERIOCAULON MONOCOCCOS var. LATIFOLIUM Nakai
Additional bibliography: Mold., Phytologia 24: 480. 1972; Mold., Phytol. Mem. 2: 301 & 602. 1980.

ERIOCAULON MONOSCAPUM F. Muell.
Additional bibliography: T. B. Muir, Muelleria 2: 140. 1972; Mold., Phytologia 24: 480--481 (1972) and 41: 415. 1979; Mold., Phytol. Mem. 2: 336 & 602. 1980.

ERIOCAULON MONTANUM Van Royen
Additional bibliography: Mold., Phytologia 41: 427. 1979; Van Royen, Alpine Fl. N. Guin. 2: 825, 833, 834, & 836, fig. 283 G--M & pl. 95. 1979; Mold., Phytol. Mem. 2: 326 & 602. 1980; Mold., Phytologia 50: 254. 1982.
Additional illustrations: Van Royen, Alpine Fl. N. Guin. 2: 825 & 833, fig. 283 G--M & pl. 95. 1979.
Recent collectors describe this plant as a cespitose herb, the leaves "semi-glossy mid-green", in rosettes, forming large cushions, the inflorescence pale-green or purplish, and have encountered it in bogs, at 2550--3000 m. altitude. Van Royen (1979) lists it from Mounts Giluwe, Kenive, Kinkain, Amungwiwa,

Kerewa, Sarawaket, Scratchley, Piora, Wilhelm, and Suckling, the Neon Basin, and Iswan Swamp, remarking that it usually occurs "on wet spots in the alpine grasslands or on boulder-strewn slopes", at 3150--4000 m. altitude, in both flower and fruit from January to July. He lists the native name, "kuk", for it. He has designated the unnumbered Giulianetti collection in the Leiden herbarium as the type (holotype).

Additional citations: NEW GUINEA: Papua: Croft & al. LAE.65250 (E--2473570); Croft & Hope LAE.65932 (Ld, W--2895095); Stevens & Veldkamp LAE.54906(W--2929647). MOUNTED ILLUSTRATIONS: Van Royen, Alpine Fl. N. Guin. 2: fig. 283 C--M. 1979 (Ld) and pl. 95. 1979 (Ld).

ERIOCAULON MUTATUM N. E. Br.

Additional bibliography: Mold., Phytologia 34: 405. 1976; Mold., Phytol. Mem. 2: 224, 226, 233, 235, 237, 250, 400, & 602. 1980.

ERIOCAULON NAKASIMANUM Satake

Additional bibliography: Mold., Phytologia 29: 210. 1974; Mold., Phytol. Mem. 2: 301 & 602. 1980.

ERIOCAULON NAKASIMANUM var. SUPERANS Satake

Additional bibliography: Mold., Phytologia 24: 481. 1972; Mold., Phytol. Mem. 2: 301 & 602. 1980.

ERIOCAULON NAKAYENSE T. Koyama

Additional bibliography: Mold., Phytologia 24: 481. 1972; Mold., Phytol. Mem. 2: 285 & 602. 1980.

ERIOCAULON NANELLUM Ohwi

Additional bibliography: Mold., Phytologia 36: 484. 1977; Mold., 290, 301, & 602. 1980.

Additional citations: MOUNTED CLIPPINGS: Ohwi, Bot. Mag. Tokyo 44: 566. 1930 (W).

ERIOCAULON NANELLUM var. ALBESCENS Satake

Additional bibliography: Mold., Phytologia 24: 481. 1972; Mold., Phytol. Mem. 2: 301 & 602. 1980.

ERIOCAULON NANELLUM var. FILAMENTOSUM (Satake) Satake

Additional bibliography: Mold., Phytologia 24: 481--482. 1972; Mold., Phytol. Mem. 2: 301 & 602. 1980.

ERIOCAULON NANELLUM var. PILIFERUM Satake

Additional bibliography: Mold., Phytologia 36: 484. 1977; Mold., Phytol. Mem. 2: 301 & 602. 1980.

ERIOCAULON NANTOENSE Hayata

Additional synonymy: Eriocaulon nantoense var. nantoense [Hayata] apud Chang, Fl. Taiwan 5: 185. 1978. Eriocaulon nantoense

Hayata ex Mold., Phytologia 52: 128, in syn. 1982.

Additional bibliography: Worsdell, Ind. Lond. Suppl. 1: 376. 1941; Huang, Taiwania 15: 152. 1970; Mold., Phytologia 34: 405. 1976; Chang, Fl. Taiwan 5: [179] & 185--187, pl. 1316. 1978; Mold., Phytol. Mem. 2: 301, 304, 310, 402, & 602. 1980.

Additional illustrations: Chang, Fl. Taiwan 5: 186, pl. 1316. 1978.

Chang (1978) asserts that this species is endemic to Taiwan where it is often found in shallow pools in the central and northern regions of the island. He cites Kawakami 1913 (the type collection), Nakai 4221, and Suzuki 6716. It has been found in flower and fruit in April and November, in flower only in October. Huang (1970) describes its pollen grains as 21--25 mu wide on the basis of Nakamura 4221 from Taiwan.

Additional citations: TAIWAN: Koyama & Kao 8610 (N); Suzuki 6644 (Mi); Yamamoto & Mori s.n. [Nov. 2, 1932] (Mi). MOUNTED ILLUSTRATIONS: Chang, Fl. Taiwan 5: 186, pl. 1316. 1978 (Ld).

ERIOCAULON NANUM R. Br.

Additional bibliography: Mold., Phytologia 41: 427 & 458. 1979; Mold., Phytol. Mem. 2: 336 & 602. 1980.

ERIOCAULON NASUENSE Satake

Additional bibliography: Mold., Phytologia 29: 210. 1974; Mold., Phytol. Mem. 2: 301 & 602. 1980.

ERIOCAULON NAUTILIFORME H. Lecomte

Additional bibliography: H. Lecomte, Notul. System. 1: 188. 1909; Höck, Justs Bot. Jahresber. 39 (1): 1016. 1913; Fedde, Justs Bot. Jahresber. 39 (2): 1387. 1916; Mold., Phytologia 26: 31. 1973; Mold., Phytol. Mem. 2: 288, 290, 292, & 602. 1980.

Lecomte (1909) cites for this species only unnumbered Geoffray and Lecomte & Finet collections from Cambodia, of Pierre from Cochinchina, and of Thorel from Laos.

Additional citations: MOUNTED CLIPPINGS: H. Lecomte, Journ. Bot. Morot. 21: 105. 1908 (W).

ERIOCAULON NEESIANUM Körn.

Additional bibliography: Mold., Phytologia 29: 210--211 & 234. 1974; Mold., Phytol. Mem. 2: 268 & 602. 1980.

Additional citations: MOUNTED CLIPPINGS: Körn., Linnaea 27: 628. 1854 (W).

ERIOCAULON NEGLECTUM Ruhl.

Additional bibliography: Mold., Phytologia 32: 502 (1976) and 37: 77. 1977; Mold., Phytol. Mem. 2: 142 & 602. 1980.

ERIOCAULON NEO-CALEDONICUM Schlecht.

Additional bibliography: Mold., Phytologia 36: 484. 1977;

Mold., Phytol. Mem. 2: 331 & 602. 1980.

ERIOCAULON NEPALENSE Prescott
Additional synonymy: Eriocaulon nepalense "Presc. ex Bong." apud Worsdell, Ind. Lond. Suppl. 1: 376. 1941.
Additional & emended bibliography: Fyson, Journ. Indian Bot. 2: 198. pl. 6. 1921; Fyson, Indian Sp. Erioc. pl. 6. 1923; Worsdell, Ind. Lond. Suppl. 1: 376. 1941; Mold., Phytologia 36: 485. 1977; Mold., Phytol. Mem. 2: 301 & 602. 1980.
Additional illustrations: Fyson, Indian Sp. Erioc. pl. 6. 1923.
Additional citations: MOUNTED CLIPPINGS: Körn., Linnaea 27: 637. 1854 (W).

ERIOCAULON NEPALENSE var. LAOSENSE Satake
Synonymy: Eriocaulon nanellum var. laosense Satake ex Mold., Phytol. Mem. 2: 290 & 602, sphalm. 1980.
Additional bibliography: Mold., Phytologia 36: 485. 1977; Mold., Phytol. Mem. 2: 602. 1980.

ERIOCAULON NIGERICUM Meikle
Additional bibliography: Anon., Kew Bull. Gen. Ind. 111. 1959; Mold., Phytologia 41: 427--428. 1979; Mold., Phytol. Mem. 2: 200, 205, 207--209, 212, & 602. 1980.

ERIOCAULON NIGRICEPS Merr.
Additional bibliography: Mold., Phytologia 24: 483 (1972) and 34: 403. 1976; Mold., Phytol. Mem. 2: 307 & 602. 1980.
Jacobs refers to this plant as "tufted in open marshy places in elfin forests with scattered grassy clearings free from regular fires" and describes the inflorescences as "blackish".
Additional citations: PHILIPPINE ISLANDS: Luzon: Jacobs 7451 (E--2368312).

ERIOCAULON NIGRUM H. Lecomte
Additional bibliography: Mold., Phytologia 34: 405. 1976; Mold., Phytol. Mem. 2: 28, 292, & 602. 1980.
Lecomte (1912) cites for this species only unnumbered collections of Balansa and of Bon from Tonkin, Vietnam. Hennipman has encountered what may be this plant in a forest along a streamlet in Thailand, in both flower and fruit in January,
Additional citations: THAILAND: Hennipman 3651a (Ac, Ld).

ERIOCAULON NIGRUM var. FUSCESCENS T. Koyama
Additional bibliography: Mold., Phytologia 24: 483. 1972; Mold., Phytol. Mem. 2: 292 & 602. 1980.

ERIOCAULON NILAGIRENSE Steud.
Additional bibliography: Mold., Phytologia 41: 428. 1979; Mold., Phytol. Mem. 2: 262, 268, 272, 278, & 602. 1980; Mold., Phytologia 50: 252 (1982) and 53: 276. 1983.
Recent collectors describe this plant as a cespitose herb, 30

cm. tall, with white flower-heads, and have found it growing in swampy meadows, on streambanks, in boggy pastures, in loamy soil "in anthropogenous, marshy, regularly burned grassland", at 850--2000 m. altitude, in flower in October and in both flower and fruit in May. Bernardi notes that it is "conspicuous at 1000 m." in Sri Lanka (where my wife and I also observed it to be quite abundant in patana). Sinclair reports it "rare" in mountain streams in Travancore.

The Jarrett & Ramamoorthy HFP.1034 collection appears to represent an almost subglabrous form.

Material of this species has been misidentified and distributed in at least some herbaria as E. robusto-brownianum Ruhl.

Additional citations: INDIA: Karnataka: Jarrett & Ramamoorthy HFP.995 (Mi), 1034 (Mi); Saldanha & Ramamoorthy HFP.1142 (Mi). Kerala: J. Sinclair 3600 (W--2918904). SRI LANKA: Bernardi 15768 (W--2908152), 16094 (E--2906609); Huber 483 (W--2891117); Sohmer & Sumithraarachchi 9922 (E--2581975), 10014 (E--2582877), 10141 (E--2576244); Sohmer & Waas 8699 (E--2266793); Sumithraarachchi DBS.939 (W--2915608). CHINA: Yünnan: Forrest 12002 (Ba). THAILAND: Geesink, Hattink, & Phengklai 7048 (Ac).

ERIOCAULON NILAGIRENSE f. PARVIFOLIUM Mold.

Additional bibliography: Mold., Phytologia 41: 428. 1979; Mold., Phytol. Mem. 2: 262, 268, & 602. 1980.

Recent collectors merely refer to this plant as an herb with white "flowers" and have encountered it in marshes, at 7000 feet altitude.

Additional citations: INDIA: Tamil Nadu: Koelz 11007 (Mu).

ERIOCAULON NIPPONICUM Maxim.

Additional bibliography: Mak., Ill. Fl. Jap. [724]. 1924; Ishidoya, Chines. Drog. 1: 16. 1933; Terasaki, Nipp. Shokubutsu Zufu [Jap. Bot. Illust. Album] 1846; Mak., Illust. Fl. Nipp. 771, fig. 2313. 1940; Worsdell, Ind. Lond. Suppl. 1: 376. 1941; Mold., Phytologia 34: 264, 394, 404, 406, & 492. 1976; Holm, Pancho, Herberger, & Plucknett, Geogr. Atlas World Weeds 148. 1979; Mold., Phytol. Mem. 2: 198, 278, 299, 301, & 602. 1980.

Additional illustrations: Mak., Ill. Fl. Jap. [724]. 1924; Ishidoya, Chines. Drog. 1: 16. 1933; Terasaki, Nipp. Shokubutsu Zufu [Jap. Bot. Illust. Album] 1846. 1933; Mak., Illust. Fl. Nipp. 771, fig. 2313. 1940.

Material of E. nipponicum has been misidentified in distributed in some herbaria as E. miquelianum Körn.

Additional citations: KOREA: Oh 85 (Ba--381693). MOUNTED ILLUSTRATIONS: Mak., Illust. Fl. Nipp. 771, fig. 2313. 1940 (Ld).

ERIOCAULON NIPPONICUM var. GLABERRIMUM Satake

Additional bibliography: Mold., Phytologia 24: 484. 1972; Mold., Phytol. Mem. 2: 301 & 602. 1980.

ERIOCAULON NOSORIENSE Ohwi
Additional bibliography: Mold., Phytologia 26: 32. 1973; Mold., Phytol. Mem. 2: 301 & 602. 1980.
Additional citations: MOUNTED CLIPPINGS: Ohwi, Bot. Mag. Tokyo 44: 567. 1930 (W).

ERIOCAULON NOVOGUINEENSE Van Royen
Additional bibliography: Mold., Phytologia 36: 485. 1977; Van Royen, Alpine Fl. N. Guin. 2: 825, 840, & 841, fig. 285 A--EE. 1979; Mold., Phytol. Mem. 2: 326 & 602. 1980; Mold., Phytologia 53: 267 & 273. 1983.
Additional illustrations: Van Royen, Alpine Fl. N. Guin. 2: 841, fig. 285 A--EE. 1979.
Van Royen (1979) says that this plant grows at the edges of lakes and on marshy slopes in montane to alpine grasslands, at 2590--3680 m. altitude, in both flower and fruit from February to August in both Papua and the Territory of New Guinea. He records the vernacular name, "pehndigi".
Additional citations: MOUNTED ILLUSTRATIONS: Van Royen, Alpine Fl. N. Guin. 2: 841, fig. 285 A--EE. 1979 (Ld).

ERIOCAULON NUDICUSPE Maxim.
Additional bibliography: Mak., Ill. Fl. Jap. [723]. 1924; Worsdell, Ind. Lond. Suppl. 1: 376. 1941; Mold., Phytologia 34: 396 & 406. 1976; Mold., Phytol. Mem. 2: 301 & 602. 1980.
Additional illustrations: Mak., Ill. Fl. Jap. [723]. 1924.
Additional citations: JAPAN: Honshu: Inami 956 (Mi). MOUNTED ILLUSTRATIONS: Mak., Illust. Fl. Nipp. 772, fig. 2316. 1940 (Ld).

ERIOCAULON OBCLAVATUM Sataka
Additional bibliography: Mold., Phytologia 24: 484--485. 1972; Mold., Phytol. Mem. 2: 257 & 602. 1980.

ERIOCAULON OBTUSUM Ruhl.
Additional bibliography: Mold., Phytologia 24: 485. 1972; Mold., Phytol. Mem. 2: 142 & 602. 1980.

ERIOCAULON OCTANGULARE Blume, Cat. Gewass. Buitenz., imp. 1, 35, nom. nud. 1823.
Bibliography: Blume, Cat. Gewass. Buitenz., imp. 1, 35 (1823) and imp. 2, 35. 1946; Mold., Phytologia 50: 253. 1982.
Nothing is known to me of this plant whose vernacular name is said by Blume to be "manjil". Presumably it is one of the native Javan species.

ERIOCAULON ODASHIMAI Masamune
Additional bibliography: Mold., Phytologia 24: 485. 1972; Mold., Phytol. Mem. 2: 281 & 602. 1980.

ERIOCAULON ODORATUM Dalz.
Additional bibliography: Fyson, Indian Sp. Erioc. pl. 24. 1923; Worsdell, Ind. Lond. Suppl. 1: 376. 1941; Bennet, Fl. How-

rah 99 & 100. 1976; Hocking, Excerpt. Bot. A.31: 17. 1978; Holm, Pancho, Herberger, & Plucknett, Geogr. Atlas World Weeds 148. 1979; Mold., Phytologia 41: 428. 1979; Mold., Phytol. Mem. 2: 262, 270, 285, 288, 290, 402, & 603. 1980.

Additional illustrations: Fyson, Indian Sp. Erioc. pl. 24. 1923.

Recent collectors report finding this plant in open fields, in both flower and fruit in February. Bennet (1976) asserts that it grows "In moist harvested fields without water or with a very thin layer of water". He refers to it as "rare", flowering from September to November in West Bengal.

Additional citations: THAILAND: Koyama, Phengklai, Niyomdham, Tamura, Okada, & O'Connor 15481 (N). MOUNTED CLIPPINGS: Dalz., Journ. Bot. Kew Misc. 3: 280. 1851 (W).

ERIOCAULON OFFICINALE Körn.

Additional bibliography: Mold., Phytologia 24: 485. 1972; Mold., Phytol. Mem. 2: 278 & 603. 1980.

ERIOCAULON OLIVACEUM Mold.

Additional bibliography: Mold., Phytologia 36: 486. 1977; Mold., Phytol. Mem. 2: 91 & 603. 1980.

ERIOCAULON OLIVERI Fyson

Additional bibliography: Mold., Phytologia 41: 428. 1979; Mold., Phytol. Mem. 2: 266 & 603. 1980.

Additional citations: MOUNTED CLIPPINGS: Fyson, Kew Bull. Misc. Inf. 1914: 331. 1914 (W).

ERIOCAULON OMURANUM T. Koyama

Additional bibliography: Mold., Phytologia 24: 485. 1972; Mold., Phytol. Mem. 2: 301 & 603. 1980.

ERIOCAULON OREADUM Van Royen

Additional bibliography: Mold., Phytologia 34: 486. 1976; Mold., Phytol. Mem. 2: 326 & 603. 1980.

Recent collectors refer to this plant as an herb growing in small clumps, 10 cm. tall, the leaves "mid-pale-green" and the inflorescences whitish, and have found it growing at 2550 m. altitude, in both flower and fruit in May.

Additional citations: NEW GUINEA: Territory of New Guinea: Stevens & Veldkamp LAE.54904 (W--2929646).

ERIOCAULON ORYZETORUM Mart.

Additional bibliography: Fyson, Indian Sp. Erioc. pl. 32. 1923; Worsdell, Ind. Lond. Suppl. 1: 376. 1941; Mold., Phytologia 41: 428. 1979; Mold., Phytol. Mem. 2: 257, 262, 272, 285, 289, 292, & 603. 1980; Mold., Phytologia 50: 255 (1982) and 53: 265. 1983.

Additional illustrations: Fyson, Indian Sp. Erioc. pl. 32. 1923.

The Bogner collection, cited below, was grown from seed imported from Singapore.

Lecomte (1912) cites for this species only unnumbered collections of Lecomte & Finet from Annam and Cambodia and of Thorel from Cochinchina.

The Niyondham & al. 107, distributed as E. oryzetorum, actually is E. achiton Körn.

Additional citations: CULTIVATED: Germany: Bogner 1533 (Ld).

ERIOCAULON OVOIDEUM Britton & Small

Additional bibliography: Mold., Phytologia 36: 486. 1977; Mold., Phytol. Mem. 2: 89, 91, & 603. 1980.

ERIOCAULON OZENSE T. Koyama

Additional bibliography: Mold., Phytologia 24: 486. 1972; Mold., Phytol. Mem. 2: 301 & 603. 1980; Hara in Ozegahara, Scient. Res. Highmoor 132. 1982.

Additional citations: MOUNTED ILLUSTRATIONS: T. Koyama, Journ. Jap. Bot. 31: 6, fig. 1. 1956 (W).

ERIOCAULON PACHYSTROMA Van Royen

Additional bibliography: Mold., Phytologia 24: 486. 1972; Mold., Phytol. Mem. 2: 314 & 603. 1980.

ERIOCAULON PALLESCENS (Nakai) Satake

Additional bibliography: Mold., Phytologia 26: 32. 1973; Mold., Phytol. Mem. 2: 301 & 603. 1980.

ERIOCAULON PALLIDUM R. Br.

Additional bibliography: Mold., Phytologia 24: 486--487. 1972; Mold., Phytol. Mem. 2: 336 & 603. 1980.

ERIOCAULON PALLUDICOLA Alv. Silv., Arch. Mus. Nac. Rio Jan. 23: 160, pl. 2. 1921.

Additional & emended bibliography: Alv. Silv., Arch. Mus. Nac. Rio Jan. 23: 160, pl. 2. 1921; Worsdell, Ind. Lond. Suppl. 1: 376. 1941; Mold., Phytologia 29: 213. 1974; Mold., Phytol. Mem. 2: 142 & 603. 1980.

Additional illustrations: Alv. Silv., Arch. Mus. Nac. Rio Jan. 23: pl. 2. 1921.

The original spelling of the specific epithet of this taxon, as given at the head of the original description, is "palludicola", although it is spelled "paludicola" under the accompanying illustration.

Additional citations: MOUNTED ILLUSTRATIONS: Alv. Silv., Arch. Mus. Nac. Rio Jan. 23: pl. 2. 1921 (Ld); Alv. Silv., Fl. Mont. pl. 3. 1928 (Ld).

ERIOCAULON PALMERI Ruhl.

Additional bibliography: Mold., Phytologia 32: 504. 1976; Mold., Phytol. Mem. 2: 62 & 603. 1980.

ERIOCAULON PALUSTRE Salzm.

Additional bibliography: Mold., Phytologia 24: 487. 1972; Mold.,

Phytol. Mem. 2: 142 & 603. 1980.

The Santos & Mattos Silva collection, cited below, comprises plants which are much larger in stature than those seen on the type collection, but appear to possess the same essential characters. The collectors describe the plants as to 20 cm. tall, the leaves fleshy, and the inflorescences ashy, and found it both in flower and fruit in July.

Additional citations: BRAZIL: Bahia: Santos & Mattos Silva 3265 (Ld).

ERIOCAULON PANAMENSE Mold.

Additional bibliography: Mold., Phytologia 32: 504. 1976; Mold., Phytol. Mem. 2: 83 & 603. 1980.

ERIOCAULON PANCHERI H. Lecomte

Additional bibliography: Mold., Phytologia 41: 428. 1979; Mold., Phytol. Mem. 2: 331 & 603. 1980.

ERIOCAULON PAPILLOSUM Körn.

Additional bibliography: Mold., Phytologia 24: 487. 1972; Mold., Phytol. Mem. 2: 142 & 603. 1980.

ERIOCAULON PAPUANUM Van Royen

Additional bibliography: Mold., Phytologia 24: 487. 1972; Mold., Phytol. Mem. 2: 326 & 603. 1980.

ERIOCAULON PARADOXUM Mold.

Additional bibliography: Mold., Phytologia 24: 488. 1972; Mold., Phytol. Mem. 2: 62 & 603. 1980.

ERIOCAULON PARAGUAYENSE Körn.

Additional bibliography: Mold., Phytologia 36: 486/ 1977; Mold., Phytol. Mem. 2: 142 & 603. 1980.

ERIOCAULON PARKERI B. L. Robinson

Additional bibliography: Worsdell, Ind. Lond. Suppl. 1: 376. 1941; Kral in Godfrey & Wooten, Aquat. Wetl. Pl. SE. U. S. 504, 518, & 519, fig. 301. 1979; Mold., Phytologia 41: 428--429 & 454. 1979; Wherry, Fogg, & Wahl, Atlas Fl. Penna. 93. 1979; J. T. & R. Kartesz, Syn. Checklist Vasc. Fl. 2: 197. 1980; Mold., Phytol. Mem. 2: 9--14, 16, & 603. 1980; F. C. Seymour, Phytol. Mem. 5: 171. 1981; Snyder & Vivian, Rare Endang. Vasc. Pl. Sp. N. J. 23 & 97. 1981; Mold., Phytologia 50: 455 (1982) and 52: 111. 1982.

Additional illustrations: Kral in Godfrey & Wooten, Aquat. Wetl. Pl. SE. U. S. 519, fig. 301. 1979.

Seymour (1981) refers to this plant as "Rare" in the tidal mud-flats of rivers in New England. Snyder & Vivian (1981) list it from Atlantic, Burlington, Camden, Cumberland, Gloucester, Monmouth, Ocean, and Salem Counties, New Jersey, where, they say, it occurs "In shallow water of estuaries and muddy tidal flats. Local and rare throughout its range in the U. S. Vulnerable and declining due to destruction and pollution of its habitat."

Additional citations: QUEBEC: Québec Co.: Clausen & Trapido 2779 (It). MAINE: Penobscot Co.: Fernald & Long 13166 (It); Laubengayer & Quimby s.n. [August 22, 1937] (It). Sagadahoc Co.: Fernald & Long, Pl. Exsicc. Gray. 174 (It). County undetermined: Kendall s.n. [June 9, 1899] (W--26558). NEW YORK: Dutchess Co.: Muenscher & Curtis 5602 (It). Greene Co.: Muenscher & Curtis 5604 (It), 5605 (It). Orange Co.: Muenscher & Curtis 5599 (It). Ulster Co.: Muenscher & Curtis 5603 (It), 5606 [N. Y. Aquat. Pl. seed 138] (It), 5606a (It), 5606b (It). Iona Island: Muenscher & Curtis 5598 (It). Rogers Island: Muenscher & Curtis 5600 (It), 5601 (It). NEW JERSEY: Burlington Co.: Blaser 234 (It); Dix s.n. [9/24/44] (It). Camden Co.: Pennell 12006 (It). Monmouth Co.: Edwards & Clausen 1419 (It); Gershoy 207 (It); Thorne 1034 (It). Ocean Co.: Thorne 1192 (It). PENNSYLVANIA: Bucks Co.: Dreisbach 4382 (Mi), 4541 (Mi). Lancaster Co.: Heller & Halbach s.n. [September 12, 1891] (It). MARYLAND: Cecil Co.: Blake 9694 (It). Worcester Co.: Edwards s.n. [Oct. 19, 1938] (It). NORTH CAROLINA: Tyrrell Co.: Radford 44454 (Mi).

ERIOCAULON PARVICAPITULATUM Mold.

Additional bibliography: Mold., Phytologia 24: 489. 1972; Mold., Phytol. Mem. 2: 250 & 603. 1980.

ERIOCAULON PARVUM Körn.

Additional bibliography: Mold., Phytologia 34: 486. 1976; Mold., Phytol. Mem. 2: 299, 301, & 603. 1980.

ERIOCAULON PECTINATUM Ruhl.

Additional bibliography: Mold., Phytologia 24: 489. 1972; Mold., Phytol. Mem. 2: 262 & 603. 1980.

ERIOCAULON PELLUCIDUM Michx.

Additional & emended bibliography: Raf., Atl. Journ., imp. 1, 121. 1832; J. C. Willis, Dict. Flow. Pl., ed. 2, 368 (1903) and ed. 3, 378. 1908; Lotsy, Vortr. Bot. Stammesges. 3 (1): 706--709 & 964, fig. 481 & 482. 1911; J. C. Willis, Dict. Flow. Pl., ed. 5, 251 (1925) and ed. 6, imp. 1, 251. 1931; Solomon, Hourn. Indian Bot. Soc. 10: 139--144. 1931; Raf., Autikon Bot., imp. 2, 189. 1942; A. C. Martin, Am. Midl. Nat. 36: 523, 533, 652, 654, & 659. 1946; Raf., Atl. Journ., imp. 2, 121. 1946; J. C. Willis, Dict. Flow. Pl., ed. 6, imp. 2, 251 (1948) and ed. 6, imp. 3, 251. 1951; Kapp, How Know Pollen Spores 92 & 222, fig. 182. 1969; Napp-Zinn, Anat. Blatt. A (1): 555. 1974; Latorre, Ortega, & Inca, Cienc. Naturaleza 18: 62. 1977; Haslam, River Pl. 287. 1978; Johnson & Fowles, Heritage Me. Wild Fls. 66, 67, & 226. 1978; Monteiro-Scanavacca & Mazzoni, Revist. Bras. Bot. 1: [59] & 63. 1978; Kral in Godfrey & Wooten, Aquat. Wetl. Pl. SE. U. S. 504, 513--515, & 518, fig. 298. 1979; Mold., Phytologia 41: 429--430, 454, & 457 (1979), 43: 222 (1979), and 44: 123. 1979; Monteiro, Giulietti, Mazzoni, & Castro, Bol. Bot. Univ. S. Paulo 7: 49. 1979; Pursh, Fl. Amer. Sept., imp. 2 [ed. Ewan], 92. 1979; Wherry, Fogg, &

Wahl, Atlas Fl. Penna. 93. 1979; Zander & Pierce, Bull. Buffalo Soc. Nat. Sci. 16 (Suppl. 2): 40 & 92. 1979; Campbell & Eastman, Fl. Oxford Co. 93--94. 1980; J. T. & R. Kartesz, Syn. Checklist Vasc. Fl. 2: 197. 1980; Mold., Phytol. Mem. 2: 8--14, 16, 27, 29, 33--35, 301, 368, 402--404, & 603. 1980; Prescott, How Know Aquat. Pl., ed. 2, 126, fig. 146. 1980; Foote, Phytologia 50: 24. 1981; A. Löve, Taxon 30: 515. 1981; Munz & Slauson, Ind. Illustr. Living Things Outside N. Am. 219 & 351. 1981; F. C. Seymour, Phytol. Mem. 5: 171. 1981; Mold., Phytologia 50: 233 & 235 (1982), 52: 110 & 113 (1982), and 53: 282 & 283. 1983.

Additional illustrations: Lotsy, Vortr. Bot. Stammesges. 3 (1): 708 & 709, fig. 481 & 482. 1911; Kapp, How Know Pollen Spores 92, fig. 182. 1969; Johnson & Fowles, Heritage Me. Wild Fls. 67 (in color). 1978; Kral in Godfrey & Wooten, Aquat. Watl. Pl. SE. U. S. 514, fig. 298. 1979; Prescott, How Know Aquat. Pl., ed. 2, 126, fig. 146. 1980.

It is worth noting here that modern geologists believe that North America and Europe began breaking apart and separating, with the Atlantic Ocean intervening, about 65,000,000 years ago, in the Cretaceous or soon after flowering plants were evolved. It would seem, therefore, that a sufficient lapse of time has occurred to lend support to the belief that the American and European populations are now quite separate taxa, if not of specific, then surely of subspecific or varietal rank, especially in view of their reported different genetic constitution.

Kapp (1969) says of the pollen of this species: "Size: 34--35 mu diameter.....The spiral furrows of Eriocaulon, and related structures on other monocots, have been interpreted as spiral endocracks. They resemble, but may not be homologous with, spiral apertures in dicotyledonous pollen grains. In E. septangulare the exine strips are 8--10 mu wide; the spinules are 1.5--2 mu apart." It would be very interesting to compare this description with the pollen grains of the very closely related European E. aquaticum (J. Hill) Druce."

The Harvey s.n., St. John 1168, and Tuckerman s.n., previously cited by me as typical E. pellucidum, are now regarded as representing f. pumilum (Raf.) Mold.

In this connection it is worth noting how Rafinesque distinguishes his taxa from typical E. pellucidum: for E. pellucidum he says "Canada, Alleghanies, New Jersey, leaves 1--2 inches, scape 3 to 6, scales often fuscate, fl. grey". For E. pumilum [later var. pumilum] he says "Leaves subulate recurved pellucid acute, convex and striated outside, flat inside. Scape stiff double than leaves, spirally striated. Capitule hemispherical, scales black obovate obtuse. -- Annual like all the Sp. On the Catskil or Kiskomon mts of New York, on the margin of the two lakes, only one inch high. Flowers estival. tricolor, base green, middle brown, top nearly white". For E. brevifolium he says "fol. subul. brevissimis acutis, scapo elong. gracilis contorto sulcato, basi vaginato, capit. globosis, bract. ovat. acut. glabris fulvis -- South. New Jersey and Texas, leaves un-

cial or less, scape 5 to 8 inches few ribs, heads small, fl. grey." It seems plain that the present E. texense Körn. is included in his description of E. brevifolium.

Löve (1981) lists the chromosome number for E. pellucidum as n = 10 on the basis of Harriman 16695 from Waushara County, Wisconsin, and Parfitt 2880 from Langlade County, Wisconsin.

Carton refers to this plant as "emergent through dessication and in water to 2 dm. deep in peaty silt along lakeshores" in Ontario. Dirig & Cryan found it at the edges of sandy-bottomed kettle lakes at 2500 feet altitude in New York. Fernald, Long, & Dunbar found it in bog-barren ponds in Newfoundland; Fernald & long in stream deadwaters in Maine. In Quebec it is often found in association with Lobelia dortmanna; in Newfoundland it has been encountered at 380 m. altitude.

Material of E. pellucidum, in the southernmost areas of its natural range, is sometimes misidentified and distributed in herbaria as E. compressum Lam. On the other hand, the Blaser 28, Knieskern s.n., and St. John 1855, distributed as E. pellucidum, actually are E. compressum Lam., Muenscher 3649 is E. decangulare var. minor Mold., Thorne 3957, 4696, 5022, 6551, & 7030, Thorne & Muenscher 8994, and Wiegand & Manning 681 are E. lineare Small, and Gershoy 207, Heller & Halbach s.n. [September 13, 1891], Radford 44454, and Thorne 1034 & 1192 are E. parkeri B. L. Robinson.

Additional citations: NEWFOUNDLAND: Fernald, Long, & Dunbar 26459 (It), 26460 (It); Fernald & Wiegand 5068 (It); Fernald, Wiegand, & Kittredge 2970 (It), 2971 (It), 5069 (It). NOVA SCOTIA: Cape Sable Island: Macoun 22639 (It); St. John 1168 (It). QUEBEC: Gaspé Co.: Marie-Victorin, Rolland-Germain, & Jacques 44547 (It). Gatineau Co.: Senn 1860 (It). Portneuf Co.: Greenough s.n. [Sept. 20, 1891] (It). Saguenay Co.: H. F. Lewis s.n. [Aug. 31, 1928] (It). ONTARIO: Haliburton Distr.: Wright & Wright s.n. [July-Sept. 1913] (It). Leith Township: Zenkert s.n. [Sept. 4, 1929] (It). Nipissing Dist.: Riley & Lindsay 12052 (Mi). Parry Sound Distr.: Freer 70 [Herb. Univ. Toronto 828] (It); Mc Donald 313 (It). Rainy River Dist.: Carton 19062 (Mi). Nipigon Prov. Forest: Clemens 67 (It). Thessalon: DePoe & DePoe 7763 (Ne--77380, Ne--86162). MAINE: Penobscot Co.: Cochrane s.n. [East Corinth, July 28, 1880] (N, N); Laubengayer & Quimby s.n. [August 24, 1937] (It); Perkins s.n. [July 23, 1935] (It). Waldo Co.: Fernald & Long 13162 (It). York Co.: Muenscher s.n. [June 24, 1941] (It). NEW HAMPSHIRE: Carroll Co.: Hellquist 11012 (Ne--118608); Whiting s.n. [Lake Winnepissauquee] (It). Grafton Co.: Schrenk s.n. [Squam Lake, Aug. '91] (It). VERMONT: Addison Co.: M. Hitchcock 3018 (N). Franklin Co.: Muenscher, Manning, & Maguire 312 (It). Orange Co.: Rodman s.n. [Aug. 15, 1913] (It). MASSACHUSETTS: Barnstable Co.: Dean s.n. [September 27, 1915] (It, It); Eames s.n. [September 8, 1926] (It); W. H. Lewis s.n. [June-July 1908] (N). Berkshire Co.: Townsend s.n. [Aug. 16, 1896] (It). Hampden Co.: Shurtleff s.n. [Southwick Pond, 1858]

(N). Middlesex Co.: Dean s.n. [Oct. 7, 1917] (It); Eames s.n. [Sept. 5, 1913] (It); Mann s.n. [Concord] (It); A. H. Moore 3219 in part (It). Plymouth Co.: Fogg 3818 (It); Whiting s.n. [Aug. 31, 1849] (It). Suffolk Co.: McAtee 1085 (W--588757). Grand Menan Island: Rothrock s.n. (It). Martha's Vineyard Island: C. C. Curtis s.n. [VIII-12-1892] (It); Perkins s.n. [July 16, 1930] (It); Sheldon s.n. [July 28, 1879] (It). RHODE ISLAND: Providence Co.: E. J. Palmer 47380 (Ne--145423). CONNECTICUT: Litchfield Co.: Curtice s.n. [July 1880] (It). New Haven Co.: Averill s.n. [1879] (It). New London Co.: S. R. Hill 9462 (N); Starmer s.n. [East Lynne, August 1902] (N). Windham Co.: G. A. Petersen s.n. [July 1924] (It). NEW YORK: Albany Co.: Collector undetermined s.n. [Sand Lake] (N). Chautauqua Co.: McVaugh & Curtis 7236 (It). Clinton Co.: Muenscher, Manning, & Maguire 311 (It). Cortland Co.: Muenscher 19365 (It). Delaware Co.: Dirig & Cryan s.n. [4 Sept. 1977] (Ba, Ba, Ba, Ba). Essex Co.: Muenscher & Brown 21101 (It), 21102 (It); Muenscher & Lindsey 3142 [Seede N. Y. Aquat. Pl. 64] (It), 3145 (It); Muenscher & Maguire 2118 (It); Muenscher, Manning, & Maguire 307 (It). Franklin Co.: Muenscher & Maguire 1042 (It), 1043 (It), 1043a (It); Muenscher, Manning, & Maguire 308 (It), 309 (It); Rowlee, Wiegand, & Hastings s.n. [July 1, 1899] (It). Fulton Co.: House 9607 (It); Muenscher & Clausen 4442 (It), 4443 (It). Hamilton Co.: Eames & McDaniels 6131 (It); Muenscher & Clausen 3864 (It); Muenscher & Lindsey 3143 (It), 3147 (It); Wiegand 16487 (It); A. H. Wright 11723 (It). Herkimer Co.: Muenscher & Maguire 2117 (It), 2119 (It). Jefferson Co.: Fernald, Wiegand, & Eames 14205 (It). Nassau Co.: Gershoy 886 (It); Muenscher & Curtis 6806 (It), 6807 (It), 6808 (It), 6809 (It). Oneida Co.: Muenscher & Brown 21667 (It). Onondaga Co.: Wiegand 6130 (It). Orange Co.: Koster s.n. [Muenscher & Curtis 5609] (It); Muenscher & Curtis 5607 (It). Oswego Co.: Clausen & Hinkey 4382 (It), 4383 (It); Fernald, Wiegand & Eames 14204 (It); Kilborne s.n. [7-24-78] (It); Rowlee s.n. [Scribe, 8-4-91] (It), s.n. [Aug. 21, 1894] (It), s.n. [June 26, 1895] (It), s.n. [Sept. 5, 1906] (It); H. L. Stewart s.n. [Aug. 17, 1888] (It); Wiegand 13445 (It); Wiegand & Hoy s.n. [Sept. 11, 1897] (It). Putnam Co.: Muenscher & Curtis 5610 (It), 5612 (It). Rensselaer Co.: Cipperly s.n. [Sept. 5, 1903] (It); House 21951 (It); Muenscher & Clausen 4444 (It), 4445 (It). Rockland Co.: Muenscher & Curtis 5608 (It). Saint Lawrence Co.: Atkinson s.n. [Sept. 2, 1896] (It); Muenscher & Maguire 1040 (It), 1041 (It); Phelps 296 (It). Saratoga Co.: Denton s.n. [Aug. 1901] (It). Schuyler Co.: McVaugh & Curtis 7465 (It). Suffolk Co.: Gershoy s.n. [July 13, 1919] (It, It); Latham s.n. [Summer 1925] (It), s.n. [August 4, 1929] (It); Muenscher & Curtis 6810 (It), 6811 (It), 6812 (It), 6813 (It), 6814 (It), 6815 (It), 6816 (It), 6817 (It), 6818 (It); St. John 2622 (It); Schrenk s.n. [July 1895] (It); Schrenk & Stewart s.n. [Aug. 7, 1895] (It). Sullivan Co.: Muenscher &

Curtis 5023 (It), 5024 (It), 5025 (It). Ulster Co.: Barratt s.n. [near the Foundry, Highlands] (N). Warren Co.: Herb. Cornell Univ. s.n. (It); Metcalf & Wiegand 6132 (It); Rowlee, Wiegand, & Hastings s.n. [July 10, '99] (It, It); Wesley 1323 (Ba--389480). Washington Co.: Muenscher, Manning, & Maguire 314 (It). Westchester Co.: Muenscher & Curtis 5611 (It). NEW JERSEY: Atlantic Co.: Gershoy 206 (It). Bergen Co.: Clausen & Edwards 4097 (It). Morris Co.: Clausen & Clausen 1819 (It). Ocean Co.: Gleason, Smith, & Alexander 173 (It). Sussex Co.: Clausen & Edwards 2289 (It). PENNSYLVANIA: Wayne Co.: Clausen, Hinkey, & al. 4003 (It); Dix s.n. [Sept. 3,1945] (It); Wahl 504 (It). VIRGINIA: Augusta Co.: Killip 32582 (It). NORTH CAROLINA: Tyrrell Co.: Musselman s.n. [11 September 1976] (Ne--128335). Washington Co.: Pence s.n. [Radford 45084] (Mi). GEORGIA: Decatur Co.: Thorne & Muenscher 8642 (It). Screven Co.: Miller & Maguire 410a (It). MICHIGAN: Alger Co.: Lyons 39122 (Mi); R. H. Read 142 (Mi). Baraga Co.: Voss 7676 (Mi). Berrien Co.: Medley s.n. [August 28, 1971] (Mi). Cass Co.: Umbach 7360 (It, Mi); Voss 8815 (Mi). Cheboygan Co.: J. S. Harper 72 (It). Houghton Co.: Pringle 408 (Mi). Kent Co.: Bazuin 1702 (Mi); Cole 7871 [Herb. Grand Rap. Pub. Mus. 50095] (Mi), s.n. [Herb. Grand Rap. Pub. Mus. 50093 & 50094] (Mi). Keweenaw Co.: Lyons 39121 (Mi); L. Thomson 76-01 (Mi). Luce Co.: Voss 13652 (Mi). Marquette Co.: Pringle 391 (Mi). Presque Isle Co.: Clover & Hubbard 27818 (Ne--94878). Schoolcraft Co.: Henson 630 (Mi). Van Buren Co.: Nieuwland s.n. [VIII/23/18] (It). WISCONSIN: Stockton Island: R. G. Koch 10016 (Ne--125193). MINNESOTA: Chisago Co.: B. C. Taylor 7891 (Mi). Cook Co.: Butters & Buell 474 (It). Saint Clair Co.: Moyle 2388 (It). LOCALITY OF COLLECTION UNDETERMINED: Barratt s.n. (N); Knight s.n. (N).

ERIOCAULON PELLUCIDUM f. PUMILUM (Raf.) Mold., Phytologia 44: 123. 1979.

Synonymy: Eriocaulon pumilum Raf., Atl. Journ., imp. 1, 121. 1832 [not E. pumilum Afzel., 1856, nor "Afzel ex Körn.", 1980, nor N. E. Br., 1903, nor Chapm., 1959]. Eriocaulon pellucidum var. pumilum Raf., Autikon Bot., imp. 1, 189. 1840.

Bibliography: Raf., Atl. Journ., imp. 1, 121. 1832; Raf., Autikon Bot., imp. 1, 189. 1840; Mold., N. Am. Fl. 19 (1): 24. 1937; Mold., Phytologia 1: 323. 1939; Mold. in Lundell, Fl. Tex. 3: 6. 1942; Raf., Autikon Bot., imp. 2, 189. 1942; Mold., Known Geogr. Distrib. Erioc. 39. 1946; Raf., Atl. Journ., imp. 2, 121. 1946; Mold., Résumé 291. 1959; Mold., Phytologia 18: 373. 1969; Mold., Fifth Summ. 2: 509. 1971; Mold., Phytologia 44: 123. 1979; Mold., Phytol. Mem. 2: 8, 9, 11, 12, 402, 403, & 603. 1980; Mold., Phytologia 50: 233 (1982) and 52: 110. 1982.

Although originally regarded by Rafinesque as a species, later as a variety, of montane habitats, it seems apparent now that this taxon is merely an extreme edaphic form, probably due to lack of water supply in the habitat, although St. John reports finding it

in the swampy edges of a freshwater pond and Riley encountered it in "open graminoid fen pools, pH.5.7, water temperature 22° C., depth 5--30 cm., peat depth over 3.85 m., the dominants being algae, Menyanthes trifoliata, and Carex limosa." Forms approaching this are sometimes found in the mud along lakeshores during a low water level period or season of drought. See under E. pellucidum (above) for Rafinesque's original description. The collections cited below may be taken to represent it, but there are many intermediate collections showing almost every gradation between f. pumilum and the typical E. pellucidum.

Citations: NOVA SCOTIA: Cape Sable Island: St. John 1168 (N, W--1104093). NEW BRUNSWICK: Westmoreland Co.: Roberts & Bateman 64-2534 (Mi). ONTARIO: Cochrane Dist.: J. L. Riley 10544 (Mi). Rainy River Dist.: Garton 19062 (Ne--172316). Maine: Penobscot Co.: Harvey s.n. [Orono 1884] (C). NEW JERSEY: Morris Co.: Tuckerman s.n. [Mountain Lakes] (T). VIRGINIA: Augusta Co.: Ramsey, Freer, & Ruska 7240 (Ne--53070).

ERIOCAULON PELLUCIDUM f. ROLLANDII (Rousseau) Mold., Phytologia 43: 222. 1979.

Synonymy: Eriocaulon rollandii Rousseau, Bull. Jard. Bot. Brux. 27: 372. 1957. Eriocaulon septangulare f. rollandii (Rousseau) Lepage, Naturaliste Canad. 101: 928. 1974.

Bibliography: Rousseau, Bull. Jard. Bot. Brux. 27: 372. 1957; A. & D. Löve, Bot. Notiser Lund 111: 380 & 385. 1958; Mold., Résumé 424 & 483. 1959; Mold., Résumé Suppl. 1: [1]. 1959; G. Taylor, Ind. Kew. Suppl. 13: 52. 1966; Mold., Phytologia 18: 376, 377, & 447. 1960; Mold., Fifth Summ. 1: 14 (1971) and 2: 941. 1971; Mold., Phytologia 25: 69. 1972; Lepage, Naturaliste Canad. 101: 928. 1974; Krug, Excerpt. Bot. A.26: 415. 1976; Mold., Phytologia 36: 488. 1977; Scoggin, Fl. Canad. 2: 459. 1978; Mold., Phytologia 41: 454 (1979) and 43: 222. 1979; Mold., Phytol. Mem. 2: 8, 403, & 603. 1980.

ERIOCAULON PERPLEXUM Satake & Hara

Additional bibliography: Mold., Phytologia 41: 430. 1979; Mold., Phytol. Mem. 2: 301, 402, & 603. 1980.

ERIOCAULON PERUVIANUM Ruhl.

Additional bibliography: Mold., Phytologia 34: 487 (1976) and 36: 72. 1977; Mold., Phytol. Mem. 2: 133 & 603. 1980.

ERIOCAULON PICTUM Fritsch

Additional bibliography: Mold., Phytologia 24: 491 (1972) and 38: 131. 1977; Mold., Phytol. Mem. 2: 233, 237, & 603. 1980.

ERIOCAULON PILGERI Ruhl.

Additional bibliography: Mold., Phytologia 26: 183. 1973; Mold., Phytol. Mem. 2: 142 & 603. 1980.

ERIOCAULON PILIFLORUM Ruhl.
Additional bibliography: Mold., Phytologia 24: 491. 1972; Mold., Phytol. Mem. 2: 250 & 603. 1980.

ERIOCAULON PILIPHORUM Satake
Additional bibliography: Mold., Phytologia 24: 491--492. 1972; Mold., Phytol. Mem. 2: 301 & 603. 1980.

ERIOCAULON PILOSISSIMUM Van Royen
Additional bibliograohy: Mold., Phytologia 24: 492. 1972; Mold., Phytol. Mem. 2: 314 & 603. 1980.

ERIOCAULON PINARENSE Ruhl.
Additional bibliography: Mold., Phytologia 36: 487. 1977; Mold., Phytol. Mem. 2: 89, 91, & 603. 1980.

ERIOCAULON PIORAENSE Van Royen, Alpine Fl. N. Guin. 2: 829 & 831--832, fig. 282 G--M. 1979.
Bibliography: Van Royen, Alpine Fl. N. Guin. 2: 825, 829, & 831--832, fig. 282 G--M. 1979; Mold., Phytologia 50: 254 & 270. 1982.
Illustrations: Van Royen, Alpine Fl. N. Guin. 2: 829, fig. 282 G--M. 1979.
This species is based on Henty & Carlquist NGF.16641 from Mt. Piora, Territory of New Guinea, deposited in the Leiden herbarium. Van Royen (1979) lists it also from Mt. Giluwe and Ibawara in Papua, based on Van Royen 11228 and Kalkman 4890. He asserts that the plant inhabits wet spots in alpine grasslands or in open montane recently burned areas with secondary grass, at 2700--3200 m. altitude. It has been collected in anthesis in February, June, and July.
Citations: MOUNTED ILLUSTRATIONS: Van Royen, Alpine Fl. N. Guin. 2: 829, fig. 282 G--M. 1979 (Ld).

ERIOCAULON PLUMALE N. E. Br.
Additional bibliography: Mold., Phytologia 41: 430, 451, & 454. 1979; Mold., Phytol. Mem. 2: 200, 205, 207, 208, 210, 216, 403, & 603. 1980.

ERIOCAULON PLUMALE ssp. JAEGERI (Mold.) Meikle
Additional bibliography: Mold., Phytologia 41: 451. 1979; Mold., Phytol. Mem. 2: 207 & 603. 1980.

ERIOCAULON PLUMALE ssp. KINDIAE (H. Lecomte) Meikle
Additional bibliography: Mold., Phytologia 41: 451-452. 1979; Mold., Phytol. Mem. 2: 207, 208, 216, & 603. 1980.

ERIOCAULON PLUMBEUM Colla
Additional bibliography: Mold., Phytologia 24: 492. 1972; Mold., Phytol. Mem. 2: 142 & 603. 1980.

ERIOCAULON POILANEI Mold.
Additional bibliography: Mold., Phytologia 24: 492. 1972; Mold., Phytol. Mem. 2: 292 & 603. 1980.

ERIOCAULON POLUENSE Wang & Tang
Additional bibliography: Mold., Phytologia 24: 492. 1972; Mold., Phytol. Mem. 2: 278 & 603. 1980.

ERIOCAULON POLYCEPHALUM Hook. f.
Additional bibliography: Mold., Phytologia 41: 452. 1979; Mold., Phytol. Mem. 2: 262, 285, & 603. 1980.
Material of this species has been misidentified and distributed in some herbaria as E. robusto-brownianum Ruhl. On the other hand, the Saldanha 12725 & 16445, distributed as E. polycephalum, actually are E. robusto-brownianum Ruhl.
Additional citations: INDIA: Karnataka: Saldanha 12327 (W--2797023).

ERIOCAULON PRINGLEI S. Wats.
Additional bibliography: Mold., Phytologia 32: 505. 1976; Mold., Phytol. Mem. 2: 62 & 603. 1980.
Additional citations: MEXICO: Chihuahua: Pringle 2018 (Mi).

ERIOCAULON PSEUDOCOMPRESSUM Ruhl.
Additional bibliography: Mold., Phytologia 36: 487. 1977; Mold., Phytol. Mem. 2: 89 & 603. 1980.

ERIOCAULON PSEUDOQUINQUANGULARE Ruhl.
Additional bibliography: Mold., Phytologia 24: 493. 1972; Mold., Phytol. Mem. 2: 262 & 603. 1980.

ERIOCAULON PUBIGERUM Bong.
Synonymy: Eriocaulon pubigerum Kunth ex Steud., Syn. Pl. Glum. 2: [Cyp.] 281. 1855. Paepalanthus pubigerus Kunth ex Steud., Syn. Pl. Glum. 2: [Cyp.] 281, in syn. 1855.
Additional & emended bibliography: Steud., Syn. Pl. Glum. 2: [Cyp.] 279, 281, & 334. 1855; Mold., Phytologia 24: 493. 1972; Mold., Phytol. Mem. 2: 142. 1980.
Citations: MOUNTED CLIPPINGS: Bong., Mem. Acad. Imp. Sci. St.-Pétersb., ser. 6, 1: 628. 1831 (W); Steud., Syn. Pl. Glum. 2: [Cyp.] 281. 1855 (W).

ERIOCAULON PULCHELLUM Körn.
Additional bibliography: Mold., Phytologia 41: 452. 1979; Mold., Phytol. Mem. 2: 200, 205, 207--209, 401, 403, & 603. 1980.
Adam encountered this species on savannas, in fruit in November.
Additional citations: LIBERIA: Adam 30158 (E--2355171).

ERIOCAULON PULLUM T. Koyama
Additional bibliography: Mold., Phytologia 24: 494. 1972; Mold., Phytol. Mem. 2: 278 & 603. 1980.

ERIOCAULON PULVINATUM Van Royen

Additional bibliography: Mold., Phytologia 24: 292. 1972; Van Royen, Alpine Fl. N. Guin. 2: 825--827, fig. 281 G--L. 1979; Mold., Phytol. Mem. 2: 326 & 603. 1980.

Additional illustrations: Van Royen, Alpine Fl. N. Guin. 2: 827, fig. 281 G--L. 1979.

Brass asserts that this plant is endemic to alpine bogs and open sunny ponds in alpine grasslands, at 3225--3560 m. altitude, in West Irian, both flowering and fruiting in September. Stevens & Veldkamp refer to it as an herb forming small clumps, the leaves "mid-green" and the inflorescences brownish and have encountered it at 2560 m. altitude, in both flower and fruit in May.

Additional citations: NEW GUINEA: West Irian: Stevens & Veldkamp LAE.54929 (E--2356481). MOUNTED ILLUSTRATIONS: Van Royen, Alpine Fl. N. Guin. 2: 827, fig. 281 G--L. 1979 (Ld).

ERIOCAULON PUMILIO Hook. f.

Additional bibliography: Fyson, Indian Sp. Erioc. pl. 7. 1923; Worsdell, Ind. Lond. Suppl. 1: 376. 1941; Mold., Phytologia 29: 220. 1974; Mold., Phytol. Mem. 2: 256, 262, & 603. 1980.

Additional illustrations: Fyson, Indian Sp. Erioc. pl. 7. 1923.

ERIOCAULON PUSILLUM R. Br.

Additional bibliography: Mold., Phytologia 24: 494 (1972) and 37: 263 & 264. 1977; Mold., Phytol. Mem. 2: 336 & 603. 1980.

ERIOCAULON PYGMAEUM Soland. ex J. E. Sm. in Rees, Cycl. 13: Eriocaulon. 1809 [not E. pygmaeum Dalz., 1851, nor Körn., 1863., nor Mart., 1841].

Additional synonymy: Eriocaulon pygmaeum "Soland. ex Smith", in herb.

Additional bibliography: Lotsy, Vortr. Bot. Stammesges. 3 (1): 706, 711, & 964, fig. 480 (2). 1911; C. A. Gardn., Enum. Pl. Austral. Occid. 1: 17. 1930; Mold., Phytologia 34: 487. 1976; Mold., Phytol. Mem. 2: 336 & 603. 1980.

Additional illustrations: Lotsy, Vortr. Bot. Stammesges. 3 (1): 706, fig. 480 (2). 1911.

Recent collectors describe this plant as a low perennial herb with white flower-heads and have found it growing in small patches of otherwise bare soil among grassy vegetation on waterlogged ground and "common in shallow black soil in seepage areas", at 200 m. altitude, both in flower and fruit in February and June.

Additional citations: AUSTRALIA: Northern Territory: Kanis 1826 (Ld, W--2939250); Lazarides 7897 (W--2916602).

[to be continued]